

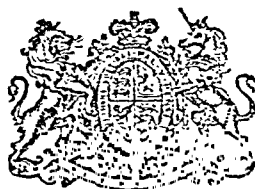
SELECTIONS

FROM THE

RECORDS OF GOVERNMENT,

NORTH-WESTERN PROVINCES.

Vol. II.



Allahabad:

PRINTED AT THE GOVERNMENT PRESS, N. W. P.

1866.

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SELECTIONS
FROM THE
RECORDS OF GOVERNMENT,
NORTH WESTERN PROVINCES.

EMBANKMENTS.

No. 1.

EMBANKMENTS IN PERGUNNAH KHYRAGURH,
ZILLAH ALLAHABAD.

(LETTER No. 174 A.)—FROM T. P. WOODCOCK, ESQUIRE,
Collector of Allahabad, to R. LOWTHER, ESQUIRE,
Commissioner, Allahabad Division. Dated Allahabad, the
30th April 1847.

SIR,—With reference to the orders of Government, dated 16th September last, No. 3982, which accompanied your letter, dated 30th idem, No. 340, I have the honor to report upon the result of the measures sanctioned under the instruction of the Lieutenant Governor, dated 18th February 1846.

2. The immediate result of that order was my application for advances, for the purposes proposed in my letter to your address, dated 17th May last, No. 84. Those advances, amounting to Rs. 19,087, were authorized by the orders of the Sudder Board of Revenue, dated 2nd June, No. 164 A, of 1846, and your letter No. 193, dated 18th June.

3. But under your instructions, dated 21st May, No. 161, I was authorized, in accordance with the proposal offered in the 10th para. of my letter above referred to, to expend Rs. 1,415, being 10 per cent. upon the jumma of the kham villages, in anticipation of the authority of the Sudder Board of Revenue, "in order that preparations might be made for the approaching khurreef sowings."

general conduct in its management, during a series of difficult seasons, deserves the highest commendation. The continuance of unwearied zeal is necessary to the good management of this distressed pergunnah, and I need hardly add that in my own person I shall labor to deserve the confidence expressed by the Government in my endeavours to serve its interests, and its implicit reliance on the fidelity of my intentions.

I have, &c.,

T. P. WOODCOCK,

Allahabad Collectorship, }

Collector.

The 30th April, 1847. }



FEMALE INFANTICIDE.**No. 1.****REPORTS ON MEASURES ADOPTED IN THE DISTRICT
OF MYNPOORY FOR THE FUTURE PREVEN-
TION OF FEMALE INFANTICIDE.**

*Letter dated 31st May, 1848, from C. RAIKES, ESQUIRE,
Officiating Magistrate of Mynpoory, to W. H. TYLER, ESQ.,
Officiating Commissioner of the Agra Division.*

SIR,—In reply to your letter No. 66, under date the 15th ultimo, I have the honor to submit a statement of the measures at present in force in this district, for the prevention of female infanticide amongst the Chohan Thakoors and Phatuck Aheers.

2. The Chohan family are to be found scattered over all the district, but are most numerous in the neighbourhood of Mynpoory; and the Phatuck Aheers inhabit some eighty villages on the rough high banks of the Jumna, in pergunnah Shekoabad.

3. The principal causes which lead to the crime of infanticide amongst the Chohans are,

First. The large sums which they consider it necessary to spend on the marriage of a daughter.

Second. Ignorant pride; which makes a Chohan Thakoor rebel against the notion of being father-in-law or brother-in-law to any one. The words which express these relations are considered by them as the worst terms of abuse; and a Chohan Thakoor will not readily allow any man to call him "sala" or "soosur."

Third. Superstition. These people consider it unlucky to keep any daughter alive. This feeling has been strengthened here unfortunately just now. A granddaughter of the Rajah of Mynpoory was saved from destruction;—probably the first female child allowed to live in his fort for ages. Since that time the father of

the child and the Rajah have died, and their death is supposed by the Chohans to have been the consequence of the preservation of the life of the little girl.

4. The measures, with the object of preventing female infanticide, which have been resorted to with some little success since 1844, are as follow :

In Chohan and Phatuck villages the watchmen are ordered to give information of the birth of a female child, forthwith, at the police station. A burkundaz goes to the house and sees the child. The thannahdar informs the Magistrate, on which an order is passed that after one month the health of the new-born child should be reported. The watchmen are further bound to give information if any illness attack the child ; when a superior police officer (either thannadar, mohurrir or jemadar,) at once goes to the village, sees the child, and sends a report to the Magistrate. In suspicious cases the body of the child is sent for, and submitted to the Civil Surgeon.

5. However strong the suspicions may be, it is difficult to convict the parents of any crime beyond neglect of their children. If, for instance, as not unfrequently happens, the Surgeon certifies that a child has died from strangulation or starvation, it is generally found impossible to convict the parents of the crime of child-murder.

6. A register showing the number of births and deaths of female infants, reported in each thannah, from 1844 to 1847 inclusive, has been kept, and a copy of it is sent with this letter.

The births reported are:—

1844,.....	156	1846,.....	222
1845,.....	77	1847,.....	299

7. I propose hereafter, if opportunity offer, to furnish an account of the male and female children now living in

these villages, which will, I fear, show that though something has been done, yet that *much* remains to be done before this crying evil be effectually put down.

8. I am going to take further precautionary measures gradually, and in a limited number of villages, by way of experiment: the result of which I will in due time bring to your notice.

9. I may suggest that if an Act were passed, making *father and mother* liable to imprisonment with labor, on proof of grossly neglecting the health of their children, and by such neglect causing their death, that the crime of female infanticide might receive a considerable check.

I have, &c.,

C. RAIKES.

No. II.—*Letter dated 20th December, 1851, from W. H. TYLER, Esq., Commissioner of the Agra Division, to JOHN THORNTON, Esq., Secretary to Government, North Western Provinces.*

SIR,—I beg you will lay before the Honorable the

From Commissioner, Agra Division, to Magistrate of Mynpoory, dated 15th August, 1851.

From Commissioner, to Magistrate of Etawah, dated 15th August, 1851.

From Magistrate of Mynpoory to Commissioner, dated 17th November, 1851.

From Commissioner, to Magistrate of Mynpoory, dated 22nd November, 1851.

From Magistrate of Mynpoory, to Commissioner, dated 9th December, 1851.

Lieutenant Governor the accompanying correspondence, giving a detailed account of two Meetings held at Mynpoory, on the 12th November and 5th December by the Chohan and other Rajpoot clans of Mynpoory, Etawah, Furruckabad, Putteealee

and Agra, for the purpose of concerting on the best mode of putting a stop to female infanticide.

2. Being fully impressed with the belief that the crime of infanticide can only be effectually suppressed through the agency of the people themselves, I, on the 15th August last, addressed letters to the Magistrates of Mynpoory and Etawah, requesting them to take steps for assembling in the cold weather the more respectable

Thakoors of both districts, with the view to their taking the subject into consideration, and concerting on the best measures to be adopted to put a stop to female infanticide.

3. In accordance to these instructions, Mr. Charles Raikes, the Magistrate of Mynpoory, preparatory to the more general assembly of the several Rajpoot clans, thought it desirable to call a meeting of the chiefs of the Chohans resident in his own district, in order to obtain some definite expression of the state of the public feeling among this tribe. This meeting took place on the 12th of November, and it resulted in the drawing up of a set of resolutions, having for their object the reduction of marriage expenses, which are considered amongst the chief causes of female infanticide. The particulars of this meeting, and the resolutions entered into by the parties present, will be found duly detailed in Mr. Raikes' report, dated 17th November.

4. On the receipt of this report, I fixed on the 5th December for the assembling of the Rajpoots of the division, and they were, in consequence, invited to meet me at Mynpoory on that date. The particulars of this meeting are fully detailed in Mr. Raikes' second letter, dated the 9th instant.

5. The resolutions adopted by the Chohan Thakoors on the 12th November were fully explained to the Rajpoots assembled, and offered to them for their acceptance. Every opportunity was given to them to express their opinions, and to offer such objections or suggestions as they deemed proper. No objections were raised. On the contrary, all were loud in their praises of the Resolutions, which were pronounced excellent, and worthy of adoption; and, in the presence of myself, the Judge of Mynpoory, the Collector and Magistrate of Mynpoory, and the Deputy Collector and Joint Magistrate of Puttealee, 360 signatures of Chiefs, their relations, and village headmen, were attached to the agreement.

6. It is to be hoped that the good example set by the Rajpoots of the Agra division will be soon followed in other districts; and with this view I would suggest that copies of the report submitted by Mr. Raikes be forwarded to the several District Officers within the North Western Provinces, as also to the chief authorities in Oude, Gwalior and Rajpootana, with a request to urge the several chiefs under them to use their influence to decrease the amount of dower and other marriage expenses, and also to protect the masters of wedding parties from the extortions usually practised by bhats and others, on the occasion of wedding ceremonies, and by these means to put a stop to female infanticide.

7. It was my intention at one time to have urged the Rajpoots to enter into a compact to put out from their caste any individual guilty of destroying his child; but after consultation with Mr. Raikes it was not deemed advisable to make so direct an attempt on the suppression of the crime, lest offence shall be taken, and a check given to the good we were hoping to effect.

8. Mr. Raikes is desirous of issuing an order to the thannahdars to prevent the bhats from forcing themselves on weddings, and extorting money from the masters of wedding parties. I see no objection to his issuing this order, as detailed in the 16th paragraph of his letter, dated 9th December, and I beg to recommend that he be authorized to issue the order in question. I also beg to recommend, as suggested by Mr. Raikes, that letters of congratulation and encouragement be sent to the chiefs named by Mr. Raikes in the 22nd paragraph of his letter, as they entered with good heart into the objects of the meeting, and are worthy of the distinction solicited.

9. In conclusion, I beg to bring to the notice of Government, the meritorious exertions of Mr. C. Raikes to suppress female infanticide.

I have, &c.,

W. H. TYLER.

No. III.—*Letter from C. RAIKES, ESQ., Magistrate of Zillah Mynpoory, dated 17th November, 1851, addressed to W. H. TYLER, ESQ., Commissioner, Agra Division.*

SIR,—With reference to the instructions conveyed in your letter, No. 211 of the 15th August last, and in anticipation of your proposed visit to Mynpoory, I have the honor to submit a short account of my proceedings.

2. I need not recapitulate here the measures which have long been pursued in this district for the prevention of female infanticide, and which were fully detailed in my letter of the 31st May 1848. It is satisfactory to know that they have so far been effectual, that, whereas in 1842 scarcely a daughter was to be found in the houses of the Chohan Thakoors, there were (see the returns subjoined to this letter), in October last, 1488 girls living, of six years and under.

3. So far, you will, I think, agree with me, that a decided impression has been made upon the minds of the people; or, at all events, an important change in their habits. It remains to be seen how this good work may be most effectually carried on.

4. My own firm belief is that the time has arrived for the extinction of this unnatural crime of child-murder, in the very surest and best manner,—I mean by the agency of the people themselves.

5. Under this impression, and in accordance with a suggestion from you, I decided upon inviting a meeting of the chiefs of the Chohan clan, preparatory to the more general assembly to be held on your arrival.

6. I hoped thus to obtain some definite expression of the state of public feeling amongst this people, which might form the basis of future direct efforts for their advantage.

7. On the 12th November, accordingly, the Rajah of Mynpoory, and many of the chief Chohan Thakoors of the district assembled in my camp at Sumaon, and were invited by me to discuss the matter noted below in para. 10.

8. I told the assembly that I came amongst them with no desire to exercise any authority over their consultations, and that whilst I would tell them my own opinion, I would also give them every assistance in carrying out their views.

9. The meeting resulted in the drawing up of the following set of Resolutions which were signed by the Rajah and every member of the assembly.

10. RESOLUTIONS OF CHOHAN THAKOORS CONCERNING MARRIAGE EXPENSES.

“Since in our tribe, owing to the expenses incurred in marriages, many evils have grown up, we, the undersigned, enter into the following engagements, and attest the same before the Magistrate of our district, so that we may act thereupon, and to the best of our power induce all of our tribe to do so likewise.

اقرارنامہ تھاکوروں چوہان
وراثتہور وغیرہ

بابت انتظام خرچ شادی
بیاض کے

واقعہ — ۱۲ نومبر سنہ ۱۸۵۱ء

جو کہ ہماری قوم میں بیچ خرچ
شادی بیاض کے کئی ایک نقصان
پڑ گئے ہیں واسطے دور کرنے انکے
ہم لوگ اپنی خوشی اور راضی
سے یہہ چند شرطیں لکھ دیتے
ہیں اور سامنے حاکم ضلع کے
تصدیق کرتے ہیں کہ اُسکے مطابق
ہم خود عمل کریں گے اور دیگر
سب ہم قوم اپنے سے اپنے مقدور
بہر عمل کراؤں گے *

इकरारनामा ठाकुरों चौहान
वा राठौर वगैरह

वावत इन्तजाम खर्च शादी
बिवाह के

वाक़ेअ १२ नवंबर सन्
१८५१ ईसवी

जो कि हमारे क़ौम में
बीच खर्च शादी बिवाह के
कई एक नुक़सान पड़ गये
हैं वास्ते दूर करने उनके
हम लोग अपनी खुशी और
राज़ी से यह चन्द शर्तें
लिखे देते हैं और सामने
हाकिम ज़िलज़ के तसदीक
करते हैं कि उसके मुता-

विक्रम हम खुद अमल करेंगे
और दीगर सब हम काम
अपने से अपने मकदूर भर
अमल करावेंगे ॥

“RESOLUTION I. We will in future regulate our marriage expenses by the four following grades.

“1st Grade.—For Rajahs or Talookdars. The dower to be demanded on behalf of a son from the parents or guardians of a marriageable daughter shall not exceed Rs. 500. One-third of this sum to be paid at the period of lugun; one-third at the door of the girl's father when the marriage procession arrives: and the remainder in the shape of pin money (kunyadan,) &c.

شرط اول

آئندہ سے شادی بیاہ کا خرچ
ہماری قوم میں ان چار درجہ
پر ہوگا *

پہلا درجہ شادی خاندان راجوں
اور تعلقداروں کا

پانچ سو روپیہ سے زیادہ بدن
یعنی دھیز میں کوئی شخص اپنے
سمدھی سے نہ مانگیگا اُس میں
تہائی لیکن اور تہائی دروازہ پر اور
تہائی کنیاندان اور پلنگ وغیرہ
تھکوں پر *

शर्त अव्वल

आइन्दह से शादी विवाह
का खर्च हमारे काम में इन
चार दरजों पर होगा ॥

पहिला दरजा शादी खान-
दान राजों और तअल्लु-
कदारान का

५००) पांच सौ रुपैया से
ज़ियादह बदन यानी दहेज़
में कोई शख्स अपने समधी
से न मांगेगा उस में तिहाई
लगुन और तिहाई दरवाज़ा
पर और तिहाई कन्यादान
और पलंग वगैरह ठिकों
पर ॥

"2nd Grade.—For Zemindars, Rs. 250. One-third, &c., as above.

دوسرا درجہ شادی خاندان
زمینداروں کا

دھائی سو روپیہ سے زیادہ بدن
یعنی دھیز میں کوئی نہ مانگیگا
جس میں تہائی لگن اور تہائی
دروازہ اور تہائی دیگر تھکوں پر *

دوسرا درجا شادی خاندان-
دান زمینداران کا
اٹھائے سौ से ज़ियादह
बदन यानी दहेज़ में कोई
न मांगेगा जिस में तिहाई
लगुन और तिहाई दरवाज़ा
और तिहाई दीगर ठिकों
पर ॥

"3rd Grade.—For others in easy circumstances, Rs. 100. One-third, &c., as above.

تیسرا درجہ شادی خاندان
رہیسوں اور خوش باش کا

سو روپیہ سے زیادہ کوئی شخص
بدن یعنی دھیز حسب شرح درجہ
اول نہ مانگیگا *

تیسرا درجا شادی خاندان-
دان رہیسوں और
खुशबाश का
१०० सौ रुपया से ज़िया-
दह कोई शख्स बदन यानी
दहेज़ हसब शरह दरजा
अव्वल न मांगेगा ॥

"4th Grade.—For all other decent people, one rupee.

چوتھا درجہ شادی باقی
بیلے مانس قوم راجپوتوں کا

شادی کوری یعنی ایک روپیہ
کے بدن کی ایسی شادی میں
کوئی شخص زیادہ دھیز نہ
مانگیگا *

चौथा दरजा शادی बाक़ी भले
मानस कौम राजपूतों का
शادی कोरी यानी एक
रुपया की बदन की ऐसी
शادی में कोई शख्स ज़िया-
दह दहेज़ न मांगेगा ॥

"RESOLUTION II. If the father of any marriageable damsel chooses of his own will to give more than is speci-

fied in Resolution I, well and good; but if the father of any youth *demand*s more than has been specified in Resolution I, we will remonstrate with him. If he persist, we will put him out of our brotherhood, because he has from his own avarice brought dishonor to the father of the damsel.

شرط دوم

اگر کسی لڑکی کے باپ نے اپنی خوشی سے کچھ زیادہ دھیز میں دیا تو خیر مگر لڑکے والا کچھ تکرار نہ کریگا اور جو حساب درجات مذکورہ بالا سے زیادہ کوئی مانگیگا تو ہم لوگ اُسکو بند کریں گے اگر نہ مانگیگا تو برادری سے علیحدہ کریں گے کس واسطے کہ اُس نے اپنے لالچ سے بدنامی اور نقصان لڑکی والے کا چاہا *

शर्त दोयम

अगर किसी लड़की के बाप ने अपनी खुशी से कुछ ज़ियादह दहेज़ में दिया तो खैर मगर लड़केवाला कुछ तक्रार न करेगा और जो हिसाब दरजात मज़कूरह वाला से ज़ियादह कोई मांगेगा तो हम लोग उसको बंद करेंगे अगर न मानेगा तो विरादरी से अलहदा करेंगे किस वास्ते कि उसने अपने लालच से बदनामी और नुक़सान लड़कीवाले का चाहा ॥

“RESOLUTION III. Since the insolence of brahmins and bhâts, and barbers, and others who abuse decent people for not spending large sums at marriage ceremonies, is a cause of needless profusion, we resolve and promise, when such abuse is offered to us or our neighbours, to complain at once to the Magistrate for redress.

شرط تیسری

جو کہ ایک سبب زیادتی خرچ کا بسبب دھمکانے اور ہجو کرنے

शर्त तीसरी

जो कि एक सबब ज़ियादती खर्च का बसबब धम-
दती खर्च का बसबब धम-

بہمنوں اور بھانٹوں اور نائی باری
وغیرہ لکایتوں کے ہی سو آئندہ
جو کوئی لکایت ہماری یا کسی
اُور ہم قوم ہمارے کی نسبت
سبب کم خرچ کرنے کے شادی
بیابا میں کچھ سخت بات کہے
یا شہجو یعنی ننذا کریگا تو ہم
لوگ فوراً اطلاع اُسکی حاکم وقت
سے کریں گے تاکہ وہاں سے اُسکو
سزا ہو *

کانے اور ہجو کرنے برا-
ہیوں اور भाटों اور नाई
باری وغیرہ لگایاتوں کے
ہے سو آइन्दह سے जो कोई
लगायत हमारे या किसी
और हम क्राम हमारे के
निसवत बसवव कम खर्च
करने के शादी विवाह में
कुछ सख्त बात कहे या
हजो यानी निन्दा करेगा तो
हम लोग फौरन इत्तलाइ
उसकी हाकिम वक्त से करेंगे
ताकि वहां से उसको सजा
हो ॥

“RESOLUTION IV. To prevent needless expenditure in crowded processions, we undertake to invite to our family weddings a moderate number of persons only, according to the grade we belong to.”

شرط چوتھی

جائتا بارات بہت کا بھی ایک
سبب زیادتی خرچ کا ہی آئندہ
سے جس درجہ کی شادی ہوگی
اُسی مطابق بارات بلاوینگے یا
لے جاوینگے *

शर्त चौथी

जाना बरात बहुत का
भी एक सबब ज़ियादती
खर्च का है आइन्दह से
जिस दरजा की शादी होगी
उसी मुताबिक बरात बुला-
वेंगे या ले जावेंगे फ़क्त ॥

11. I believe that this attack at the cause which leads to infanticide will succeed better than any more direct attempt.

No. V.—*Letter from C. RAIKES, Esq., Magistrate of Zillah Mynpoory, dated 9th December, 1851, addressed to W. H. TYLER, Esq., Commissioner, Agra Division.*

SIR,—I have the honor, in continuation of my letter No. 28 of the 17th ultimo, to submit a further detail of the proceedings in this district, relating to the suppression of Female Infanticide.

2. Deputations of the Rajpoot chiefs from the districts of Agra, Etawah, Furruckabad and Puttiallee, were invited to meet you at Mynpoory on the 5th December.

3. The chief men of the Mynpoory families, who had already signed the agreement detailed in my former letter, were in attendance; as were also the headmen of every village of Chohan Rajpoots in the district.

4. As there is some little difficulty on an occasion of this sort, owing to the tenacity about rank and precedence which is so common amongst the Thakoors, and as it is almost the *only* difficulty, I may as well detail the steps taken to get over it.

5. Three large tents were pitched in a line; the outer kunnaths being up on three sides, and the fourth side being left open. Facing to the open side, another tent was pitched for the accommodation of yourself and the other gentlemen attending the meeting: and the fifth tent was a large shameeana for the use of those who could not find room elsewhere.

6. As the assembly formed an oval, there was no place of precedence, and the several chiefs were led in, and took their seats without dispute. But this apparently trifling ceremony requires the attention of the authorities on the spot, lest a meeting intended for peaceable objects should cause ill-feeling or disgust.

7. When all, that could find room in the chief tents, were seated in a triple row, I had the pleasure of introducing you to the assembly, the members of which had been specially warned not to rise from their seats on the occasion, lest confusion should be caused.

8. You then explained to them the Resolutions passed by the Chohan meeting on the 12th November, and offered the same to their acceptance.

9. The proposed agreement was then read and discussed in several places, so as to give all an opportunity of expressing their opinion.

10. Several questions, some of them quaint enough, were asked, but no objections were urged, whilst many were loud in their praise of the measure, which was pronounced excellent in every variety of dialect; the words, "ootum," "soondur," &c., being heard on every side.

11. Three hundred and sixty signatures of chiefs, their relatives and village headmen, were attached to the agreement, including the names of those who had signed on the 12th November, and who appeared on this occasion to ratify their former engagement.

12. When the assembly broke up, many of the deputies from Agra and Puttiallee asked for copies of the agreement to take to their own people, and many pushed forward to sign, saying that the paper had not been brought to them.

13. I heard the old Rajah of Purtaubneir referring to a poetical prophecy, which had been also quoted by a Chowgurra Rajpoot of Turreea Jote on the occasion of the former meeting, the burden of which runs, that a time was to come, about the year 1900 Sumbut, when a great reform of religion might be looked for. This reform, they said, had now come.

14. I have mentioned these apparent trifles, to support my own assertion that the people entered generally into their new engagements "*con amore*," and that some real good result may reasonably be expected from the spirit displayed by them.

15. To look back at what has been done, I need only state.

First. That whereas in 1843 not a female child was to be found amongst the Chohans in this district, there are

now living, from the ages of one to seven, by the last accounts, 1,488.

Secondly. There is a little daughter living in the Rajah's fort, the only one known for centuries. *

Thirdly. The present Rajah of Mynpoory got with his bride a dower in all of Rs. 4,500 ; whereas, formerly, a lac or a lac and a half of money was demanded on such occasions.

16. For the future, and in addition to the precautionary measures now in force, I have only to propose for your sanction an order which I desire to issue to all thannahdars in the district. The terms of the order run thus. " Since
 " many Rajpoots have complained to the Magistrate of the
 " extortions practised by bhâts and others, on the occasion
 " of wedding ceremonies, it is hereby ordered that on the
 " application of any householder to that effect, no assem-
 " blage of bhâts be permitted to force themselves on his
 " wedding party, and if they should so force themselves, it
 " shall be the duty of the police to disperse them."

17. I trust you will sanction this Circular Order, on the following considerations. Marriage expenses lead to female infanticide, and one of the chief items in such expenditure is to be set down to the bhâts. These harpies, whenever a wedding is to take place, assemble from all sides, some coming ten or fifteen coss. They take up their post outside of a village the night before the procession sets off from the bride's house ; when that comes by, every man amongst them, every follower of theirs, and every horse foal, and even every dog, must be feed to the amount of a rupee. If the bridegrooms' father demur, he is hustled, laid hold of, has dust thrown on him, until at last he compounds by a considerable payment. If he fail to satisfy the bhâts,

* Another died there lately from natural causes, having long been attended by Doctor Walker, and a third has been preserved since the meeting and is now living.

then a bundle of rags is made up into an effigy, named after the master of the wedding party, stuck on a spear, and with blackened face exposed to every insult.

18. It happened only lately that, on the occasion of a marriage procession in this district, the rabble who were demanding money murdered the bride's father, because he would only give them four pice when they wanted one rupee ! It is true these murderers were not bhâts, but the bhâts generally set the example to all other extortioners on such occasions, and it is most desirable to the people at large that the mobbing practised by them should be put down. Nothing more agreeable to the Thakoors could be proposed.

19. Perhaps it may seem to you desirable that the proceedings which have here taken place may be notified to the Authorities of districts, the people of which are allied by marriage to the Chohans of Mynpoory. I allude especially to Oude, Gwalior, Kerowlee, and Jyepoor; and indeed to the Rajpoot States in general.

20. His Honor the Lieutenant Governor has declared that " * the best method of suppressing the crime of female infanticide, is to direct one's efforts to the correction of the social institutions and customs which prompt to it." I trust that the proceedings over which you have so lately presided may be considered in accordance with His Honor's views, thus expressed, and that their result may prove the justice of his expectations.

21. I beg to take this opportunity of bringing to your notice the valuable assistance I have received from the Deputy Collector and Magistrate, Jumal-ood-deen Hussun, who has long entered earnestly into every measure for the good of the Rajpoots, and especially has helped on the present reform.

* See Despatch from the Honorable the Court of Directors, dated 19th March, 1851.

22. In conclusion, I beg to suggest that a letter of congratulation and encouragement, from His Honor the Lieutenant Governor, to the chiefs of most note who attended the meeting, (namely, Tej Singh, Chohan, Rajah of Mynpoory,—Chet Singh, Chohan, Rajah of Purtaubneir,—Bahadur Singh, Rahtore, Rajah of Raupoor—and Rao Bhowanny Singh, cousin to the Mynpoory Rajah), would be much prized, and would have in my opinion the best possible effect. The chiefs whom I have named entered with good heart into the objects of the meeting, and I hope they may be deemed worthy of the distinction I have ventured to solicit for them.

I have, &c.,
C. RAIKES.

No. 2.**FEMALE INFANTICIDE AMONG THE RAJPOOT TRIBES IN ZILLAH AGRA.**

No. I.—*Letter from WILLIAM MUIR, Esq., Secretary to Government, N. W. P., to H. UNWIN, Esq., Officiating Commissioner of the Agra Division, dated Camp Nagul, the 6th March 1854.*

SIR,—The Hon'ble the Lieutenant-Governor desires me to inform you, in reply to your pre-Judicial Department. decessor's letter No. 15, of the 7th ultimo, that he has perused with close attention and interest the detailed and valuable memorandum which was therewith submitted from Mr. M. R. Gubbins, showing the nature, and the deeply gratifying result of the measures pursued by him, as Magistrate of Agra, during the last three years, with a view to the suppression of Female Infanticide in the district.

2. His Honor begs you to communicate to that able officer his warmest approbation and applause of the unremitting, well-conducted, and highly successful exertions, the plan and details of which are lucidly explained in this report.

3. It is His Honor's intention to cause the memorandum, with its appendices, to be published in an early number of the "Selections from the Government Records," in order that the course of measures adopted by Mr. Gubbins may be made generally known, for the assistance of other Magistrates, who are now happily engaged in all quarters, in efforts for the eradication of the deplorably criminal practice which had been too long suffered to lurk undetected, among the Rajpoot communities in these provinces; and which appears, in a partial degree, to have been imitated by the Aheer, and perhaps even by a few other tribes.

4. Attempts may be made by different methods, with more or less benefit, to procure the relinquishment of the

criminal habit. The consideration and discussion of all admissible and practicable plans for furthering the object is earnestly to be encouraged. The success of every plan of which trial may be made will largely depend on the personal character of the Magistrate, on his zeal, his discretion, his intimate knowledge of the people of his district, and his friendly influence over them.

5. The degree in which any such plans may be favorably carried out, without exciting irritation and opposition on the part of the classes affected by them, will be regarded by the Government as a leading test of the efficiency and usefulness of the several district Officers.

6. You are requested to forward a copy of these orders for record in the office of the Magistrate of Agra. They will be printed also, together with the memorandum drawn by Mr. Gubbins.

7. The Editor of the "Selections" will be directed to place himself in communication with Mr. Gubbins, in order that the number in which the memorandum may appear may have the advantage of revision by him before it is issued.

I have, &c.,

W. MUIR,

Secretary to Government N. W. P.

No. II.—*Letter from M. R. GUBBINS, Esq., Magistrate of Agra, to W. H. TYLER, Esq., Commissioner of Agra, dated 27th January 1854.*

SIR,—Adverting to the intention expressed in paragraph 11 of my Police Report for 1852, No. 20, dated the 18th of March last, I have now the honor to submit accompanying memorandum on the subject of "Female Infanticide," as practiced by the Thakoors and Aheers in the district of Agra.

2. This memorandum the late Lieutenant-Governor, Mr. Thomason, requested me, in February last, to prepare.

I have only now found leisure to draw it up ; and am glad to have been able to include the latest returns for the half year ending on the 31st December last.

I have, &c.,

M. R. GUBBINS,

Magistrate.

No. III.—*Extract paragraphs 9 to 11, from the Agra Police Report for 1852, No. 20, dated 18th March 1853, addressed to the Commissioner of the Agra Division.*

9. On the subject of Infanticide, I have had already the honor of addressing you, in my letter No. 4, dated the 18th of January last, enclosing correspondence with the Nizamut Adawlut. I now beg to submit copies of further letters that have passed, together with copy of the revised Rules which have been submitted for the Court's approval. The enquiry, which I was enabled to make in November last, in Bah Pinnahut, leaves no doubt whatever, that the coercive measures adopted since April 1851 have very sensibly diminished this inhuman custom ; every one bears witness to it : moreover the feeling of even that part of the country is against those who practise it. They form a small minority, and the more I pushed my enquiry the more satisfied have I become that the crime may be vigorously grappled with. I have no doubt that our own indifference, or rather ignorance of its prevalence, has fostered it ; and that it will be much abated by the mere knowledge that we have opened our eyes to its existence, and are resolved to put a stop to it. And when it is considered that the conviction of Suddakoor* was the first in which an inhabitant of Bah Pinnahut has ever been punished for this crime, since the accession of the British rule, I scarcely think that it can be denied that our conduct bears the appearance of indifference.

* *Vide* Decisions N. A. for Dec. 1852, page 1463.

10.—I have come to the conclusion, being led thereto by the remarks of the people themselves, that the comparison of the relative proportion of male and female children is the surest test of the practise of this crime ; and I look for its suppression chiefly to a careful system of registry, which shall ensure the record of birth of every female child, and, as a consequence, some enquiry into the cause of death of every such infant, and to this object the new rules are chiefly directed. I anticipate benefit from the use of the medals (of which a specimen accompanies), as a tangible record of the infant's birth, ensuring (should it die,) a like record of its death, and being an emblem of the State's protection of the child while living.

11. There is much to say on this subject which I must keep for submission in a separate form. Meanwhile it is satisfactory to offer convincing evidence of the success which has followed our preventive measures, based upon a most accurate and careful census made in November, and kept up monthly since by the putwarees. The following memorandum exhibits the total result for the suspected villages in thannahs Bah and Pinnahut :—

THANNAH.	NUMBER OF SUSPECTED THAKOORS.		NUMBER OF UNMARRIED GIRLS.		
	<i>Villages.</i>	<i>Families.</i>	<i>Before the introduction of the Rule in April 1851.</i>	<i>Since born and now living.</i>	<i>Total present number.</i>
Bah,	36	827	253	194	447
Pinnahut,	35	1264	393	363	756
Total,	71	2091	646	557	1203

By which it will be seen that the girls have nearly doubled in this interval of less than two years ; but when we examine the condition of those villages which were

most addicted to the crime—villages in which such an event as the marriage of a daughter is not remembered to have occurred—the improvement is still more striking; such, for instance, are Futtchpoora, and Reechapoora, and Kooruth, villages of Atbheya Bhudoriahs; and Jakhoulce and Koarec, of Koolheya Bhudoriahs, whose statistics are the following :—

VILLAGE.	NUMBER OF UNMARRIED GIRLS.		
	Before April 1851.	Since born and now alive.	Total present number.
Futtchpoora,	2	9	11
Reechapoora,	7	9	16
Kooruth,	4	13	17
Jakhoulce,	0	9	9
Koarec,	1	7	8
Total,	14	47	61

NO. IV.—MEMORANDUM *on the practise of FEMALE INFANTICIDE, among the Rajpoot Tribes of Zillah Agra, by MR. M. R. GUBBINS, Magistrate.*

THE crime of Female Infanticide has been practised, almost with impunity, by several of the Rajpoot Tribes of the Agra district, until a very recent period. Its prevalence, particularly in the pergunnah Bah Pinnahut, attracted my attention in the beginning of 1851, when a system of preventive rules was organized and introduced in that pergunnah. Since then the subject has engaged much of my attention, and a regular enquiry has been instituted and completed, to determine the extent to which this crime prevailed in the other pergunnahs of the district. A period of more than two and a half years, during which the preventive rules have been in force in Bah Pinnahut, has

afforded the means of judging, by experience, of their effects, their general reception among the people, and their probable prospect of success in eradicating the crime against which they were directed. And as the enquiries into the prevalence of Infanticide in the remaining pergunnahs have now been completed, and the rules, after careful revision and modification, have been introduced into all the "suspected villages," it will be useful to collect the facts and results together, and submit them for the information and orders of Government. This, indeed, I was requested to do in February last, by Mr. Thomason, our late lamented Lieutenant-Governor.

2. My attention to the prevalence of this crime was first directed by Syud Abdool Hakeem, now Deputy Collector in Agra, then manager of the maassfee estate of the Bhudawur Rajah. From him I learnt that in several villages of Bhudoriah Rajpoots, comprised in the jagheer of the Rajah of Bhudawur, Female Infanticide was notoriously practised, to such an extent that scarcely a girl was ever allowed to live, and that no means appeared to have been yet taken to enquire into, or put down the practice. On enquiring from the Native Officers who were well acquainted with this pergunnah, particularly the two named in

Sheikh Golam Hossein, for many years Tehseeldar and Police Officer, and Deputy Magistrate of Bah Pinnahut, now Naeb to the Prime Minister of Gwalior.

Rai Roopkishore, also for many years Tehseeldar, Police Officer, and Deputy Magistrate of Bah Pinnahut.

the margin, I learnt that Abdool Hakeem's statement was in nowise exaggerated, but that the prevalence of female infanti-

cide among the Bhudoriah Rajpoots of Bah Pinnahut was matter of notoriety.

3. Enquiry was then extended to all the pergunnahs, the Police Officers of which reported, in reply to my enquires, in some cases, that the crime was not practised; in others, that it certainly did exist among certain of the Rajpoot tribes, the particulars of which full enquiry alone

could elicit. On calling again for the opinions of all the most experienced Native Officers, as to the best means to check and extirpate this crime, they one and all recommended the introduction of a system of strict supervision. They advised that all pregnancies, after the foetus had quickened, as well as all births and deaths, should be registered in the Thakoor villages, and inquests held on the bodies of all female infants dying at an early age.

4. About the same time, I became informed of the pre-

Extract of a Report by the Magistrate of Allahabad in 1841.

"In the first place, I appointed a Chuprasee to reside in each village, whose sole duty it was to report the birth of a female child in the families of any of the above classes of Rajpoots. I also bound the gorait chowkeedar and midwives, under a heavy penalty, to report separately each birth at the thannah, the four thus acting as a check on each other. I directed the Thannahdar, on the death of any female infant being reported, to hold an inquest on the body, and afterwards to transmit it to the Civil Surgeon for examination. I associated the Tehseeldar with the Thannahdar, in order to ensure a more efficient superintendence. I promised them both handsome rewards if I should be hereafter satisfied that they, by their joint efforts, had put a stop to the horrible practise. I am happy to state, that, as far as I am able to judge, the method I have pursued has been attended with perfect success. It is only two months since the plan came into operation, and of four female infants that have since been born, three are alive, and one dead."

Extract of a letter from the Officiating Magistrate of Mynpoory in 1848.

"In Chowhan villages, the watchmen are ordered to give information of the birth of a female child forthwith at the Police station. A Burkundauze goes to the house and sees the child; the Thannahdar informs the Magistrate, upon which an order is passed that after one month the health of the newborn child should be reported. The

ventive systems introduced into the Allahabad district, by Mr. R. Montgomery, and into Mynpoory by Mr. H. Unwin, and ably followed out in the latter district by Mr. C. Raikes. Extracts from reports detailing the systems pursued by these officers are given in the margin; these were found to correspond closely with the recommendations of the native local officers. Accordingly, in April 1851, a system of rules was put in force for the first time in Agra, in the pergunnah Bah Pinna-hut. They will be found detailed, as at present modified, in a subsequent paragraph (25, and Appendix No. III.) and are still in force, with this exception only, that

watchmen are farther bound to give information if any illness attack the child, when a Superior Police Officer (either Thannahdar, Jemadar or Mohurrir) at once goes to the village, sees the child, and sends a report to the Magistrate. In suspicious cases, the body of the child is sent for and submitted to the Civil Surgeon."

whereas at first, pregnancies were required to be registered in suspected families, after the fifth month; this has been discontinued, under the or-

ders of the Nizamut Adawlut, and the registry is confined to that of births and deaths.

5. On reference to the records of this office, it appears, that beyond the issue of the proclamations required by Section 11, Regulation III of 1804, which was fully notified under the orders of the Bareilly Court of Circuit, dated the 30th September 1809, no measures have been taken in Agra, to check or put down the practise of infanticide, since the accession of the British rule. This fact I particularly desire to draw attention to, not, in truth, as in any way desiring to magnify the present, or impugn the value of past magisterial labours, but because the fact must be fairly accepted and recognized, before a just opinion can be arrived at as to the success which is likely to attend our present efforts. I take, I am aware, a more sanguine view of the prospects of success than do many; but this opinion has not been hastily formed; it has been arrived at while living among, and in daily and frequent intercourse with, the very people who have in Agra chiefly practised infanticide; and it is based upon the sentiments, and opinions current among them.

6. When, therefore, on every successive visit to Bah Pinnahut I am assured that the preventive measures are working admirably, while no difference of opinion is found among the suspected villagers themselves; other land-holders, native merchants, and traders, and the revenue and police officials of Government, all agreeing that in the brief space of two and a half years, a great change has been wrought, I am obliged to re-assure myself, and certainly can only convey my own assurance to

others by referring to this fact, that anterior to 1851 the existence of this crime was nearly ignored. It is certain that it was practised almost without any let or hindrance whatever; and therefore we need not be surprised that marked and striking results should follow the introduction of a system of strict and close supervision.

7. Although however no surveillance had been exercised over the suspected classes, female infanticide had not, in bygone years, been wholly unpunished in Agra. Two cases, of which the details are subjoined, had been taken up by the police, on the information of the village chowkeedars, in 1842 and 1844, and both resulted in convictions. The first case occurred in the village of Etmad-poor Ajnayra, of the tribe of Gorwa Jadon Budeysuras, thannah of Futtehabad, in 1842. The village midwife, who had attended the birth, informed the chowkeedar, who made his report at the thannah, when the father and mother of the infant, and the paternal grandmother, were arrested. They all confessed at the thannah to having destroyed the infant by administering powdered tobacco. The father admitted having taken the body, in company with his brother, and thrown it into the Ootunghun river, not far distant. All three prisoners recanted their confessions and denied the charge before the Joint Magistrate, Mr. H. B. Riddell. They were nevertheless committed, and convicted by the Court of Nizamut Adawlut, and sentenced, the mother to fourteen years' imprisonment, and the father and grandmother to imprisonment for life. This village continues still upon the "suspected list."

The second case took place in 1844, in the village of Danra, thannah Jugneyr, which is one of Ponwar Rajpoots. The chowkeedar gave information, upon which Ramphul, the grandfather of the infant, was arrested, and confessed to having destroyed his grandchild by administering "dhoomsa," (*i. e.*, the oil of smoke, which accumulates upon the inner thatch of native huts,) in milk. He

excused himself by stating that he had expended between Rs. 500 and 600 in a previous marriage of a daughter, and was unable to bear further expence. The case was committed by Mr. C. C. Jackson, the Magistrate, when the prisoner was convicted and imprisoned for life. This village is not now upon my "suspected list."

8. It appears, from replies received to references addressed to the two adjoining zillahs, Mynpoory and Etawah, that in them also, prior to 1844, there prevailed the same absence of systematic measures for the suppression of Infanticide. In neither of those districts, up to the present time, has a conviction for this offence been obtained. A case * of much interest indeed was committed in 1849, by Mr. C. Raikes, the Magistrate of Mynpoory, to the Sessions Court, which was a very strong one, and in which the accused narrowly escaped conviction.

9. The preventive measures had not been three months in force in Bah Pinnahut, when information was received which led to the discovery of a clear case of infanticide in one of the Bhudoriah villages most addicted to the crime, in thannah Bah, viz. Futtelpoora. The particulars are the following:—information was given by a Bhudoriah Thakoor, of the same clan as those whose child had been destroyed; being thereto incited by previous enmity. Before the child's birth, engagements had been taken from the lumberdars, chowkeedars, putwaree, &c., to report all births and deaths, notwithstanding which no notice whatever had been sent to the thannah; and on enquiry being instituted, the birth was denied, and the mother sent away across the Chumbul. The father of the child, and the village lumberdars, pretended that the mother had been sent away, long before, to her father's family in Cawnpoor. Their defence, however, completely broke down, as their relatives in the village of Bhudâs, zillah Cawnpoor,

* Government *versus* (1) Gundharp Singh, (2) Mussamat Bukhtcowl, his wife, (3) Bhubootee his uncle; Chohan Rajpoots.

denied her having come, and many circumstances were elicited to prove that the birth had taken place, and had been concealed in Futtehpoura. No trace of the infant's body having however been obtained, it was not thought expedient to risk the chance of an acquittal at the Sessions, and the accused father and mother of the child were released, upon the village lumberdars binding themselves, under heavy recognizances, to put a stop to the practice for the future. The village chowkeedar was also discharged, and a Mussalman appointed in his place. The village ballahur, patwarce, and dayce were also summoned and admonished, and their engagements taken to report, without fail, all similar occurrences for the future.

10. I am thus particular in noticing the case of mouzah Futtehpoura, because I have been gratified by since personally witnessing, last month, the complete success of the preventive measures as respects this village. Its zemindars are Bhudoriah Rajpoots, of the clan termed "Athheya," among which the practice of infanticide was most prevalent. When the preventive rules were introduced, there were but two girls among the 30 Thakoor families contained in the village. One of these belonged to Imrut Singh Thakoor, and had been preserved in obedience to a vow made by the father, after losing two sons successively, that he would preserve his next child, whether it were male or female. The second girl was daughter of Gopal Singh Thakoor, and had been preserved by the accident of her mother having been absent on a visit to her own family in Oude when the child was born. I had the satisfaction, in December last, to find thirteen girls in this village. Among these, Imrut Singh and Gopal Singh's daughters were the only big girls, now being seven years of age, and of the remaining eleven, none exceeded two years! All these infants were collected together with their mothers, in the house of the principal Athheya zemindar, and there visited by my wife, who distributed presents

to them, and thus obtained effectual assurance of their existence. The good effect of the preventive rules is here too manifest to require further comment.

11. I succeeded, in 1852, in effecting the conviction, by the Court of Nizamut Adawlut, of a member of a Purechar family, in which a new-born female infant had been destroyed in the village of Bipraolee, thannah Pin-nahut. The infant was destroyed by her paternal grandmother, by administering powdered tobacco. The chowkeedar of the village reported at once the child's birth and death, when enquiry was immediately instituted by the police; the village of Bipraolee being included in the "suspected list." A report of this case will be found in the "Decisions of the Nizamut Adawlut for December 1852, at page 1463," in which the name of the committing officer is wrongly entered, the case having been committed by myself.

12. Subjoined is a specification of the tribes and clans which have been found to practise infanticide in Agra. It comprises, as will be seen, twelve classes of Rajpoots, or Thakoors, and one distinct and separate race, viz., of Aheers, which is known to practise the crime in one pergunnah, viz., Ferozabad, and in the adjacent villages of Mynpoory. I wish here to notice the necessity of carrying enquiry into particular detail while prosecuting investigations of this nature. I mean that, in popular and general parlance, a whole tribe may be accused by addiction to this crime, whereas in fact the greater part of its members may be free from all just suspicion; and a small fraction only guilty. Careful and particular investigation only can elicit the truth, and enable the Magistrate to discriminate between the one and the other. In exemplification of my meaning I would observe, that it is commonly received as a notorious and patent fact, that the Bhudoriah Rajpoots do murder their infant female children. This fact cannot escape the knowledge of any officer seeking information on the subject, in any of the neighbouring

pergunnahs of Agra, Mynpoory, or Etawah. This much only is generally known, or could be learnt, without more particular and local investigation. But after making such enquiry, we learn that the Bhudoriahs are distinguished into seven clans, as noted in the margin. That it is only

- | | |
|-------------|-------------------|
| 1. Atbheya | 4. Rawut, |
| 2. Koolheya | 5. Chanderseynee. |
| 3. Konwur. | 6. Mynoo. |
| 7. Tuseley. | |

among the three first, or best blood clans, that infanticide is generally practised, while among

the remaining four it rarely, and only exceptionally, obtains. Were there any measures adopted in reference to the villages of the Bhudoriah Rajpoot tribe generally, they would fail of much effect, because they would embrace the innocent as well as the guilty. But success may justly be anticipated where those clans only are brought under surveillance and registry who especially and particularly practise the crime.

Number.	Ull, or general de- signation.	Zat, or Tribe.	Gote or Clan.	General remarks as to locale where the Tribe is found, and the prevalence of Infanticide.
1	Bhudoriah Rajpoot,	Chohan,	Atbheya, Koolheya, Konwur, Rawat, Chunder- seynee.	These three are the superior clans, i. e., those of best blood, in the Bhudoriah tribe; they are also those most especially addicted to the crime of Female Infanticide. Their villages are in the thannah Bah, and the Kool- heyas also in thannah Pinnahut. The Bhudoriah Raja belongs to the family of the Konwars. These are inferior clans of the same Bhudoriah stock. Infanti- cide obtains among them in a much less degree than among the three superior clans, many of their villages being altogether free from suspicion; still there are a few who do practise it.
2	...	Pureehar,	...	This is a tribe of pure Rajpoot origin, of which villages are found in the thannahs of Bah Pinnahut, and Futtehabad. They practise Female Infanticide, but in a less degree than the Bhudo- riahs. Conviction has been obtain- ed in the case of this clan. See para. 11 of Report accompanying.

Number.	Ull, or general designation.	Zat, or Tribe.	Gote, or Clan.	General remarks as to locale where the Tribe is found, and the prevalence of Infanticide.
3	...	Tonwur,	...	A tribe of pure blood, found in the thannahs of Bah and Pinna-hut. This tribe is very numerous and strong in the Gwalior country, bordering on the Chumbul. They notoriously are addicted to Infanticide, almost equally with the Bhudoriahs.
4	...	Chohan,	...	A tribe of pure blood, of which there are a few villages scattered in thannahs Bah, Futtehabad, and Narkee, in purgunnah Ferozabad. They are known to practise Infanticide.
5	...	Kuchwaha,	...	Tribes of pure blood, found in small numbers, being parts only of other villages, in thannah Bah; and known more or less to practise Female Infanticide.
6	...	Jadon,	...	
7	...	Baghey-ley,	...	
8	...	Dhacra, ...	...	A tribe of pure blood, of which there are some villages in the thannahs of Futtehabad and Eradutnuggur, known to practise Female Infanticide.
9	Sickurwar,	Burgoojur, and Bhardwaje,	...	A tribe of pure blood, chiefly occupying the villages of thannah Khyragurh. There are a few of the tribe also in Eradutnuggur. It is known to practise Infanticide.
10	...	Ponwâr, ...	...	A tribe of pure blood, very numerous in the Ponwâr puttee, in Dholepore; and also extensively settled in the thannah Jugneyr, known to practise Female Infanticide.
11	Gorwa, ...	Jadon, ... Ditto, ... Tonwar, ... Chohan, ... Dhacra, ... Kuchwaha,	Bhuddesura, ... Jussawut, Indolleca, Dhittia, ... Jhunghar, ...	There are six clans of spurious Rajpoots, denominated by the generic term of "Gorwa," which is applied to all Thakoors who have a flaw in their pedigree, and with whom those of pure blood will not intermarry. These clans practise "dharokh," called also "dhuraona" or "dhareyja," which is an inferior custom of marriage, to which widows and women of low caste are admitted. Their women do not keep purdah, and when the father is not very well off, he accepts payment for giving his daughter in marriage. The richer and best families of these clans practise Infanticide.

Number.	Ull, or general de- signation.	Zat, or Tribe.	Gote, or Clan.	General remarks as to locale where the Tribe is found, and the pre- valence of Infanticide.
12	Rajpoot, ...	Various, ...	Various, ...	This is a very degenerate tribe of Rajpoots. It appears singular, but they are called, <i>par-excellence</i> , Rajpoots. They are not termed Thakoors. They are so loose in their marriage and concubinage customs, that they have entirely lost caste with the Thakoors. They practise dhareyja, and take up with any woman. They are very numerous in the Dholepore adjacent pergunnah of Raja Kheyra, and have many villages also in thannah Futtehabad. Female Infanticide is very rarely practised among them; for they usually make a gain by the marriage of their daughters. But there is one village in thannah Futtehabad which is guilty of the crime.
13	...	Aheers, ... Ditto, ... Ditto, ...	Mullunia. Goondowa, Phatuck,	This is the only caste, wholly distinct and apart from the Thakoors or Rajpoots, that is known to practise Female Infanticide in Agra. These Aheer villages belong to a numerous and lawless tribe, located in the neighbourhood of the Jumna, at the southern extremity of pergunnah Ferozabad, and the adjoining pergunnah of Shekoa-bad, zillah Mynpoorie. They seem to have adopted this crime from their neighbours, the Rajpoots.

13. In the cold season of 1852, while encamped in Bah Pinnahut, I obtained much valuable information from the people of the pergunnah. My practise was to summon a few of the more respectable zemindars of the neighbourhood, and calling them in separately, seat them by me, and then take down their depositions in the absence of others. In this manner I was enabled to arrive at the truth. The same parties, I must observe, would undoubtedly have greatly modified their statements, had they been called up

in public, and confronted with their neighbours of the offending villages. I have annexed, (see Appendix No. I,) abstracts of a few of the most interesting depositions, which will I think be found to throw particular light upon the subject.

14. From an examination of these, which correspond with the statements made to me by the people generally, the following data may be drawn; viz.:—

1st.—The practise of Female Infanticide is not general among the Rajpoots of Agra, but is limited chiefly to certain clans among them, distinguished by superior blood and family.

2nd.—In the same village it may be practised by some, and abhorred by others of the same clan.

3rd.—It is not necessary that the Rajpoots should expend large sums upon the marriages of their daughters. If the family contents itself with an equal * marriage, a very moderate sum, easily within the reach of a zemindar, will suffice. It is only when expensive and distant alliances are sought, (as with the tribes of Rujwarra,) that much expense is necessarily incurred.

4th.—The chief part of the outlay attending such a marriage, say two-thirds, consists of the items comprised in the term, “buddun,” i. e., presents to the bridegroom’s family, which have no existence on occasions of equal alliance.

5th.—Of the remaining one-third, the main charge, which is for feeding the *burât*, is also moderate in the case of equal marriages, when the marriage procession is small, and makes a short stay.

6th.—That the fees paid to the bhats or bards in Agra form an inconsiderable item, which does not fall upon the bride’s, but upon the bridegroom’s, family; and their demand is not pressed with any such importunity or extortion as to require repressive interference.

* Equal in birth, and also in circumstances of life.

7th.—That the practise of Female Infanticide is held by the people of the country to be an act of “bedhurme,” or wickedness. I may add that the word “pâp,” *i. e.*, sin, and “hutheeah,” *i. e.* murder, are terms applied to it commonly by the people themselves.

8th.—There exists no ground for supposing that the tribes which have heretofore most practised Female Infanticide will experience any difficulty in honorably settling in marriage the daughters who are now, under the existing “preventive measures,” everywhere springing up among them. All that will be necessary is that they should content themselves with equal marriages; and following the example of the Symra Chohans, (see Chowdhree Beyneeram’s evidence, No. 8,) have nothing to do with the distant and expensive Thakoors of Rujwarra.

9th.—The preventive measures in force during the last two and a half years have greatly diminished the practise. This result, however, will be separately proved by the further facts set forth in this report.

15. It will be noticed in the specification appended to para. 12 that, in pergunnah Futtehabad and Eradutnugur, several clans of the “Gorwa” or spurious Rajpoots, practise Infanticide; also that it obtains in some Aheer villages of Ferozabad; assuredly this appears strange, but not the less true; with this further peculiarity, that the crime among these tribes is confined to the families of chief consideration. Those among them who are best bred (there are none thoroughbred among the “Gorwas”) and have most means, assume and practise the worst vices of the genuine Thakoors, whose degenerate descendants they are; while their poorer brethren are glad, contrarywise, to increase their means by accepting money from the bridegroom’s family on the marriage of their daughters.

16. The foregoing data sufficiently shew that the expense, attending such distinguished alliances as the pride of certain Rajpoot clans leads them to effect, is the chief

cause of their destroying their daughters. They possess not the necessary means, and get rid of the difficulty by removing the occasions of marriage. So far then as this expenditure gives cause for the crime, as well as on other general grounds, it is highly desirable to follow in the steps of Colonel Hall, of Mairwarra, Mr. C. Raikes, and others, by endeavouring to induce a more moderate and reasonable expenditure. But this is, I consider, all that can be done, or should be done, in the matter. It is an error, I conceive, to advocate the enactment of sumptuary laws, in order to impose compulsory limitation; simply because the expense attending the obtaining a husband for a Thakoor girl, depends, as has been above shown, not merely upon the position in life of the girl's father, but upon a variety of circumstances connected with the relative descent, *i. e.*, blood and wealth of *both* contracting parties. It has been shewn that a Thakoor girl may be "*equally*" married at a moderate charge; but as no set of rules or law can prevent a Thakoor father from pretending to a son-in-law of superior blood, so it seems impossible to fix, by rule, the sum which he shall expend upon his daughter's wedding. It depends in truth upon himself, not on those who accept payment. If he will aspire to high rank or position, he must pay for it; if he will be content with equal blood, (and there is no reason why he should not do so) he needs no protection.

17. This principle obtains in Europe, (our own favored country not excepted) as in India. In marriage contracts, the defect of blood must be made up in money, and it is so natural a custom that no rules which we can devise will overcome it; it is suggested by man's interest and man's necessity, and would survive the enactment of the strictest law. The error of the opposite view consists, I think, in regarding the charges attending a marriage as a mere ordinary expenditure, which may be increased or curtailed at the pleasure of the party incurring it; and doubt-

less many such superfluous expenses do often accompany "shadees," which might be retrenched. But the *necessary* expense, that which costs the poor Thakoor girls their lives, is that of the "buddun," which is the subject of strict bargain and stipulation, before the marriage engagement is concluded; and it depends, like all other commodities, on the "quality of the article" sought. Blood and family, like other more ordinary matters, are valuable; and nothing that we can enact will prevent a price being paid for them. To seek them, or to abstain, and rest satisfied with less rank and birth, is always optional with the Thakoor.

18. It is for these reasons, that I cannot anticipate any great results to follow the adoption of the Mynpoorie resolutions of the 5th December 1851, by which the limit of wedding expense is regulated according to the social position of the bridegroom's family only. Their general object is excellent, and will be very useful; but so long as Thakoor fathers will seek higher born sons-in-law, they must, and will, pay for them.

19. The case of the abolition of Infanticide among the Mairs, by the noble efforts of Colonel Hall, cannot be held to be a parallel case. For,

First.—They are a peculiar, isolated, and separate race, not dependent upon the customs and practices of other tribes.

Secondly.—Their customs were wholly and essentially different,* from those prevailing among the Rajpoots generally. Among them the expense was payable by the male side, instead of, as among our Rajpoots, by the female. They had one unalterable sum fixed, which was payable by all, whether rich or poor, without any favor or abatement. The case here is wholly different; it is only under peculiar circumstances that marriages are very expensive. In ordinary cases they need not be, and are not so.

* Vide Dixon's Mairwarra, pages 31 and 32.

20. I now proceed briefly to describe the course of enquiry pursued in Agra to determine which are the classes, or rather villages, which shall be for the present held "suspected." It is to these, and these only, that the "preventive measures" are made to apply. The Police Officers of the five* pergunnahs known to contain villages practising infanticide, were required to prepare and submit lists of all villages that were, by common repute, open to suspicion. Next, a very careful census was made of the Thakoor families in these villages, (the forms will be afterwards noticed), shewing their number, caste, and clan, the number of girls not exceeding eleven years of age, and the number of boys of a corresponding age. These returns were prepared by the putwarees, and after being carefully tested, were made over, with the lists of suspected villages, to the Deputy Magistrate of each pergunnah, with directions that a file of proceedings should be opened in the case of each village, and regular investigation made. Witnesses of other castes, resident in the accused and neighbouring villages, were to be heard; the evidence of the putwaree recorded; the defence of the headmen of the defendant village taken. The census return was also to be carefully examined, and general repute, and the voice of "fama clamans" listened to. After which the Deputy Magistrate was to record his final proceeding, absolving or convicting the village of lying under suspicion of the practice of infanticide. His proceedings were transmitted to myself for final order, and I disposed of them, when possible, in the pergunnah, among the people themselves, from whom I could always obtain the information necessary to resolve any doubt.

21. It is observable, as incidentally mentioned in paragraph 13 of this letter, that in scarcely a single case are the recorded depositions taken by the Deputy Magis-

* (1) Bah Pinnahut, (2) Futtchabad (3) Eradutnuggur, (4) Khyragurh, Surheyndy, (5) Eerozabad.

trates sufficient to warrant even the limited conviction of "being suspected." In some most glaring cases,* in which a glance at the comparative returns of male and female children is sufficient to prove the existence of the practice, the buniahs, brahmins and others have deliberately denied it; the general burthen of the evidence being to the effect that, before the British rule, or before the introduction of the "preventive measures," infanticide had been practised, but had since been given up. The decisions of the Deputy Magistrates and myself have therefore been chiefly based upon the unerring result of a most careful census, greatly aided by the general repute in which a village was held by its neighbours. An important fact upon which the putwarees were always closely examined is also the number of Thakoor girls that had been married within the last five years. To sum up; the relative number of girls to that of the Thakoor families, their proportion also to the number of boys of like age, the number of marriages that had taken place within five years, and the general character of the village, as ascertainable in the pergunnah, afforded grounds for decision on which it was scarcely possible to go wrong. Oral evidence taken down in Court is, as compared with these sources of information, of little value. I remember after a long conversation on the subject with Ram Singh, Rajpoot Goojur of Sowarra, a principal zemindar in pergunnah Futtehabad, when pressing him with questions regarding the reputed practice of infanticide in various clans, that he stopped me with this remark, "Sir, most of these villages practice it more or less; what is the use of further questions? Count the boys and girls, and you can decide the question yourself."

22. I do not know but that Mr. C. Raikes' standard of age, *viz.*, six years, would not be better than that adopted by me, *viz.*, eleven years; because, although generally the

* *Vide* the village of Roodmoolee, No. 10, thannah Bah; also Rechapoor No. 9, &c.

ceremony of "gohna," or final dismissal of the bride to her husband's family, does not usually take place till after the 11th year, yet it does occasionally take place earlier; and, therefore, to maintain a just comparison with the boys, it is necessary to add to the number of girls resident in the village those under eleven years, who may have finally left it for their husband's homes. I have kept on the standard of eleven years to facilitate comparison with previous returns, having only lately noticed that six years was that adopted in Mynpoorie; but I would recommend the latter age as the standard, wherever the system were newly introduced.

23. Appendix No. II contains particulars of the 100 villages which have been finally pronounced to be "suspected," and consequently subjected to the "preventive measures." In a zillah containing 1284 muhals, this number does not appear very large; being less than one-twelfth of the whole. So much care has been taken with the numerical entries in columns 10 to 15, which were in some cases personally tested by myself, that they may be, I think, thoroughly relied upon. An examination of them will afford detailed proof and particulars of what has been above stated in respect to the greater or less degree in which the Rajpoot clans are addicted to the crime. Foremost will be noticed the Atbheya, Koolheya, and Konwar clans of the Bhudoriahs, in thannahs Bah and Pinnahut; in some villages of which, it will be seen that there were *no girls* two and a half years ago! Subjoined is an abstract of the 100 suspected villages, classed according to their clans:—

No. of Tribe.	Name of Tribe.	Name of Clan.	Number of villages.
1	Bhudoriah, 	Atbhey, 	10
1	Ditto, 	Koolheya, 	10
1	Ditto, 	Konwar, 	4
1	Ditto, 	Rawut, 	3
		Total, 	27

No. of Tribe.	Name of Tribe.	Name of Clan.	Number of villages.
1	Bhudoriah,	Chunderseyne,	5—32
2	Tonwur,	Ditto,	—4
3	Purechar,	Ditto,	—8
4	Dhacra,	Ditto,	—12
5	Chohan,	Ditto,	—3
6	Gorwa,	Bhuddeysura,	6
1	Ditto,	Duttia,	3
1	Ditto,	Indoleca,	5
1	Ditto,	Jussawunt,	1
1	Ditto,	Kuchwaha,	2
1	Ditto,	Jhunjhar,	1—18
7	Sikurwar,	Burgoojur,	3
1	Ditto,	Bharutdwaj,	4—7
8	Ponwar,	Ditto,	—9
9	Aheer,	Mullunia,	4
1	Ditto,	Phatuck,	2
1	Ditto,	Goondowa,	1—7
9	Total, ...		—100

24. The vantage ground which has been gained by the completion of this enquiry, and by the distinction of the classes which underlie suspicion, from those which do not, will readily be admitted. The power of the Magistrate to repress and combat with this crime is greatly increased by being concentrated upon those only who are guilty. And the moral effect of public opinion is also in a great degree secured, which could not be obtained so long as we had not learnt to discriminate between the innocent and the guilty.

25. It remains only for me briefly to describe the system of "*preventive measures*" now enforced in this district, in the case of all villages declared to be "suspected." Its main feature is that of the immediate and compulsory registry of births and deaths of female infants in the Thakoor families. The headmen of the village, each Thakoor individually, the village putwarree, the chowkeedar, the bullahur, and the village dayees or midwives, are required to aid in this registry, in the manner set forth in

distinct engagement* obtained from them in writing; and which are filed with the several cases in the Magistrate's office. The Police officers and Naib Darogahs are required† to exercise a vigilant surveillance, and thus exact the regular fulfilment of these engagements. The village putwaree registers every birth and death reported to him daily in his diary; and furnishes a copy of the entries monthly to the thannah in the Form No. 1‡. He is also required to file at the thannah a half-yearly return in the Form No. 2, accompanied by the Memos. A. and B., and in Bah Pinnahut to keep a register of medals§ issued and returned in the Form No. 4. Two monthly vernacular statements in the Persian character, see Forms 3 and 4, and two half-yearly ones in the Forms 2 and 5, are prepared by the thannah writers from the putwaree's returns, tested, and sent in periodically to the Magistrate's office, where they are examined and recorded. Translations of the instructions issued to the Police Officers and Naib Darogahs, and of the forms of engagements taken from each party, being copies of those submitted for the approval of the Nizamut Adawlut, N. W. P., with my letter No. 63, dated the 14th of March last, will be found in Appendix No. III.

26. To carry out this system it is necessary that the principal agents, *viz.*, the putwaree, chowkeedar, and bul-lahur, should be both efficient for their duties, and also directly under the influence of the Magistrate and Collector. In Agra both these conditions obtain, for the putwarees are paid directly from the Collector's treasury, through the tehseeldars; and the village Police receive their monthly pay, in like manner, from the Magistracy, by hand of the thannah Darogahs. The advantages of both these systems

* See Forms 1 to 5 in Appendix No. III.

† See Instructions to Police Officers, &c., in Appendix No. III.

‡ See Appendix IV.

§ For explanation of the use to which these medals are put, see marginal remarks to the "Second" Form of engagement in Appendix III.

are so manifold and apparent, that it is surprising that they should not have been more generally introduced. In the villages comprised in the jagheer of the Rajah of Bhuddawur, these arrangements were imperfect, and corresponding difficulty was at first experienced in enforcing the "preventive measures." It may be here mentioned that this chief is the head of the tribe of Bhudoriah Chohan Rajpoots, his family belonging to the clan of "Konwur." His residence is at Nogaon, which village is included in the "suspected list," and out of the 100 suspected villages, ten are comprised in his jagheer. There has been a long minority in the rāj, and the present chief, Mohundur Singh, has only just attained his majority, and possesses as yet little influence, or I should have obtained its exercise in aid of the "preventive measures." It is matter of much importance carefully to watch the conduct of the chowkeedar, upon whose fidelity the enforcement of these measures mainly depends. It will be seen, on reference to the particulars of the former cases of this crime, which have been prosecuted to conviction, that in each case, the chowkeedar was the instrument by which the discovery of the crime was made to the Police. It is a favorite practice of the zemindars to get a relative of their own appointed chowkeedar, and, in more ordinary cases, the appointment may be made without injury. But in the suspected villages it will not do. The chowkeedar must belong to a different caste altogether, and the Mussulman is found to sympathize least with child-murder: it has therefore always been found necessary to remove the chowkeedar, if of the same clan, and to appoint a stranger.

27. The assistance of the village midwives, or dayees, is found of much importance; they belong to the lowest caste, and the husband, or other relative, is generally the village bullahur, whose especial duty it is, to report the occurrence of crime. It is usual to employ always the same dayee in a Thakoor family, and thus, by her instrument-

ality, which cannot be foregone, is exercised, without giving offence, that very interference and control in the "penetralia" of the Rajpoot's family, which is commonly supposed to be impossible, and which is essential to success.

28. The custom now actually and thoroughly established, and daily practised in these villages, is the following:—On the occasion of a birth in a Thakoor family, the village dayee is summoned, and after her services have been completed, she reports the occurrence to her relative, the bullahur; he informs the chowkeedar, who causes the necessary entry to be made in the putwarce's diary, and, if the birth be of a girl, reports the event to the thannah. On the third or fourth day the chowkeedar, accompanied generally also by a burkundauze from the nearest police post, proceeds with one of the headmen of the village, and the dayee, to the door of the Thakoor's house, to make enquiry after the infant. The dayee goes within, and, on her return, reports the condition of the child, adding that the mother has nursed it, when all depart, and a note to that effect is entered in the putwarce's diary. The nursing of the infant by its mother is, among the Bhudoriahs, considered a point of much importance; for they will not (or very rarely) kill a child which has once drawn sustenance from the mother's breast. It is therefore particularly attended to in the pergunnah Bah Pinnahut. I have here described a general usage which has taken root, and has been practised regularly for many months. On proceeding among these villages, and enquiring of the Thakoor headmen whether their "bundobust" to prevent the destruction of female infants is good, they will at once answer in the affirmative, and describe the punctuality and care with which this custom, as above described, is attended to.

29. The result of the last half-yearly census of the suspected villages, up to the 31st December last, as shown in the accompanying return, Appendix No. II, will now be

referred to, and will conclude this report. The total returns of each thannah are the following:—

THANNAH.	Total number of suspected Thakoor families.	NO. OF GIRLS UNDER 11 YEARS OF AGE.			No. of Boys under 11 years of age on the 1st January 1854.	EXCESS.	
		In May 1851.	On 1st January 1854.	Increase.		Of Boys.	Of Girls.
Bah, ...	579	126	304	178	625	328	7
Pinnahut, ...	988	253	528	275	1125	605	8
Futtehabad, ...	1017	355	577	222	1002	425	0
Eradutnuggur, ...	1069	275	498	223	1004	508	2
Khyragurh, ...	310	67	119	45	310	191	0
Jugneir, ...	569	203	247	44	563	316	0
Ferozabad, ...	513	199	329	130	545	216	0
Narkee, ...	18	1	7	6	22	15	0
Total, ...	5063	1479	2609	1123	5196	2604	17

Their comparison will be facilitated by placing the increase per cent. of the number of girls for each thannah, in successive juxta-position, as follows:—

No.	NAME OF THANNAH.						Increase per cent. in the number of Girls.
1	Narkhee, ...	...	...	...	...	...	600
2	Bah, ...	...	...	...	...	...	135
3	Pinnahut, ...	...	...	...	...	...	109
4	Eradutnuggur, ...	...	...	...	...	...	81
5	Ferozabad, ...	...	...	...	...	...	65
6	Futtehabad, ...	...	...	...	...	...	62
7	Khyragurh, ...	...	...	...	...	...	58
8	Jugneyr, ...	...	...	...	...	...	21
	Average, ...						75

It cannot be denied but that the total increase in the number of girls, obtained within the short period of 2½

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years, being 75 per cent upon that which existed at the commencement of these proceedings, is large. In the three first thannahs it is very striking. As might have been anticipated, the increase is greatest in those quarters in which the crime of infanticide before most prevailed: or, in other words, in which there were then fewest girls. This will be seen on referring to the following memorandum, in which the thannahs are arranged successively according to the number of girls which existed in the suspected villages in May 1851.

No.	THANNAH.	Total number of suspected families.	Number of Girls under 11 years in May 1851.	Average num- ber of Girls per 100 fami- lies.
1	Narkhee, ...	18	1	5
2	Bah, ...	579	126	22
3	Khyragurh, ...	310	77	25
4	Pinnahat, ...	988	253	26
5	Eradatnuggur, ...	1069	275	26
6	Futtehabad, ...	1017	355	34
7	Jugneyr, ...	569	203	35
8	Perozabad, ...	513	199	38
Average of the whole,				29

But on directing our attention to the results obtained in those individual villages which are known to have been most addicted to the crime, they are found to be indeed very remarkable. Forty-two such villages belonging to all the eight thannahs, have been excerpted from the whole 100 "suspected," and are shewn in the following memo. On the total number of girls found in these 42 villages in May 1851, the increase, on the 1st January 1854, amounts to 137 per cent. ! while in some individual cases, and those not small villages, it exceeds 700, and 800 per cent. The village of Futtehpooora, mentioned in paragraphs 9 and 10, will be observed to head the list, and to shew an increase of 550 per cent.

No.	General Number of Appendix No. II.	THAKSAN.	VILLAGE.	NUMBER OF GIRLS UNDER 11 YEARS OF AGE.			Increase per cent.
				In May 1851.	On the 1st January 1851.	Increase.	
1	12	Bah, ...	Futtehpooa, ...	2	13	11	550
2	5	Ditto, ...	Korath, ...	4	16	12	300
3	9	Ditto, ...	Reechapooa, ...	7	18	11	157
4	10	Ditto, ...	Roodmallee, ...	6	22	16	266
5	11	Ditto, ...	Bichola, ...	1	4	3	300
6	12	Ditto, ...	Changoolce, ...	1	5	4	400
7	13	Ditto, ...	Koarree, ...	2	16	14	700
8	14	Ditto, ...	Mirkolee, ...	0	1	1	100
9	15	Ditto, ...	Neemlanda, ...	0	3	3	300
10	16	Ditto, ...	Khichurpooa, ...	3	5	2	66
11	17	Ditto, ...	Konwur Kheyra, ...	3	5	2	66
12	18	Ditto, ...	Nagaon, ...	3	10	7	233
13	19	Ditto, ...	Pyhee, ...	0	2	2	200
14	20	Ditto, ...	Goslee, ...	0	25	16	177
15	21	Ditto, ...	Gurhwar, ...	6	15	9	150
16	23	Ditto, ...	Kohurree, ...	4	11	7	175
17	34	Pinnahut, ...	Oomreytha, ...	12	22	10	83
18	35	Ditto, ...	Parkolee, ...	0	6	6	600
19	36	Ditto, ...	Reypoora, ...	2	6	4	200
20	39	Ditto, ...	Rampoor Chun-derseynee, ...	6	24	18	300
21	40	Ditto, ...	Burreynda, ...	65	145	78	120
22	43	Ditto, ...	Keyaree, ...	3	8	5	166
23	48	Futtehabad, ...	Bisarna, ...	5	14	9	180
24	50	Ditto, ...	M e y o l o o Khoord, ...	9	17	8	88
25	54	Ditto, ...	Bejhaweeye, ...	24	45	21	87
26	47	Ditto, ...	Mahommudpoor, ...	2	5	3	150
27	58	Ditto, ...	Nagur, ...	1	2	1	100
28	64	Eradntnuggur, ...	Beerye, ...	7	13	6	85
29	67	Ditto, ...	Harounda, ...	8	19	11	137
30	74	Ditto, ...	Gursohon, ...	3	8	5	166
31	75	Ditto, ...	Nugla Patum, ...	52	93	41	78
32	68	Ditto, ...	Buheyta, ...	2	19	17	850
33	70	Ditto, ...	Hurnehur Ne-wadkheyra, ...	20	46	26	130
34	71	Ditto, ...	Tehreyee, ...	20	41	21	105
35	66	Ditto, ...	Gurhee Sreput, ...	4	12	8	200
36	78	Khyragurh, ...	Ayela, ...	6	11	5	83
37	79	Ditto, ...	Bhilalee, ...	8	22	14	175
38	82	Ditto, ...	Dunkussa, ...	13	29	16	123
39	89	Jugneyr, ...	Julalpoor, ...	6	11	5	83
40	91	Ditto, ...	Nugla Kasimpoor, ...	7	12	5	71
41	93	Ferozabad, ...	Allahdadpoor, ...	20	40	20	100
42	100	Narkhee, ...	Piprolee, ...	1	7	6	600
Total, ...				357	848	489	137

30. There can therefore be no doubt but that results very highly favorable have followed the preventive measures introduced in 1851 into this district. And like success was found to attend similar measures adopted in Allahabad, by Mr. R. Montgomery in 1841, and by Mr. H. Unwin and Mr. C. Raikes in Mynpoorie in 1844 and subsequent years. Two points of enquiry seem in consequence naturally to suggest themselves; *viz.*, 1st, if such results were obtainable, why have the means been so long neglected, and the existence of this inhuman crime been tolerated under a Christian Government for nearly half a century? And 2ndly, what is to prevent the extension of this system, which has been found to work so well in these three districts, into every zillah of these provinces in which female infanticide is practised? The reply that must be given to the first query is, no doubt, that we have been ignorant of the extent to which this crime is practised, as well as of its statistics. In some districts there has been a vague knowledge that the crime obtains among certain tribes, but the extent and particulars of the practice have remained unknown. The subject would never be brought to the notice of an officer who remained but a short time in charge of a district: and if a longer residence, and greater opportunities for intercourse with the people, did enable another to discover it, he would not readily become aware of its extent, so that the great urgency of the case would not strike him. He would probably only hear that in certain villages the female children were sometimes destroyed, and would be deterred from interference by the difficulties which so obviously attend it; whereas, could he learn that *all* female infants, or *almost all*, were systematically destroyed, as has been shown to have been the case in several villages of Agra, there are few who would not be roused to the necessity of action. Again, the absence of legal sanction for such measures as are necessary to elicit informa-

tion, and to check the practice, is no doubt a main obstacle. Few, of the few informed, have leisure under the sufficient pressure of ordinary duties, to prepare such an array of facts and figures, as would afford any hope of effecting an alteration of the law; and until the law be amended, it is always possible that any active interference might elicit censure, in lieu of approbation. However, I would repeat, that the want of necessary information respecting this crime has been its chief protection. I would nowise except myself from the number of those whose enquiry on the subject has been defective. I remember that the crime was reputed, and certainly did exist in some of the Runghur* villages of the Hissar district, in Delhie; particularly the village of Buhoona, thannah Burwala, was known to practise it. Strong suspicion also attached to the Runghurs of thannah Toshaum, in the same zillah. In zillah Rohtuck, some of the Runghurs of Bhewannee, and that neighbourhood, lay under strong suspicion. Again, I am ignorant whether the crime obtains in the district of Furruckabad, of which I held charge for eighteen months. There can then, I conceive, be no doubt but that the statistics of the crime require generally to be further developed; and I am strongly impressed with the opinion that, after this has been effected, a legislative Act ought speedily to follow, based upon the information thus obtained.

31. The answer to the second query involves two considerations: *First*, whether the degree of labour and attention required to carry out these preventive measures be too great to be superimposed generally upon the current duties of a district officer? And *secondly*, whether these measures are sufficiently distasteful, and opposed to the feelings of our native subjects, to render them, on that account, objectionable? Both these questions may, I feel assured, be answered confidently in the negative.

* * Hindoo and Mahomedanized Rajpoots.

32. As respects the first, it must be admitted that the initial enquiry and determination of the classes and villages which are to be held "suspected," and the introduction into them of the system of prevention, together with its enforcement for the first twelve-month, will occupy some considerable share of the time of the Magistrate; but after this, the machinery once set in motion will be found to work of itself and give little trouble. The examination of the monthly and half-yearly returns can be made in the office, and the case of any village, in which the female births appear suspiciously rare, can be especially brought to the notice of the Magistrate. In respect to such it will be found sufficient to summon and warn the parties who are under engagements to register and report. I have found, the knowledge that a careful watch was kept over them to act as a sufficient check. During the cold weather tour again, it is of great importance always to recur to the subject in conversation, whether with the suspected parties themselves, or with their other neighbours. The Thakoors at once feel that vigilance is maintained; and hasten to assure the Magistrate that every necessary precaution is taken by themselves to suppress the crime. In furtherance of these measures, I strongly advocate the personal visiting, by the district officer, of the villages and families of those Thakoors among whom the crime most prevailed, after they have given evidence of its abandonment by rearing some number of girls. Presents of small value, personally distributed either by the officer himself, outside the Thakoor's homestead, or within it, in presence of the Thakooranies, by some female member of his family, do not fail to conciliate. The visit is esteemed an honor, and any irritation or uneasiness, which the strict surveillance might engender, is soothed; and gives way to gentler and to kindlier feelings.

33. I would also recommend the practice of occasionally encouraging those among the lumberdars, chowkee-

dars, putwarees, bullahurs, and also the dayees, who have successfully exerted themselves in aid of the suppression of this crime, by small presents publicly bestowed as a mark of Government favor by the district officer. A turban to the lumberdar, a sword or spear to the chowkeedar, a kulumdan or turban to the putwaree, a painted staff to the bullahur, and a dress to the dayee, cost little, but are highly prized, when thus publicly bestowed, in acknowledgment of good service. The measure has been tried, and with much good effect, in Bah Pinnahut.

34. Secondly, so far from these measures being opposed to the feelings of the native community generally, I can confidently affirm that, on the contrary, they have the favor and good will of the large majority. The infant-killing villages bear (as has been already shewn) a very small proportion to the rest; and certainly all, but the suspected villages themselves, view these suppressive proceedings with entire approval. It is not to be supposed that the suspected Thakoors themselves, against whom they are directed, altogether like them; but yet there exists among them no such degree of disapproval and dislike as to have produced yet, in any case, a verbal remonstrance, or a petition of complaint, addressed either to myself or to authority superior to mine. The system occasions to them, no doubt, some degree of annoyance and unpleasant interference; but they well know that when murder is to be put down, the Government does not hesitate to enforce sterner measures much than these; and they think the present system a far preferable alternative to the liability, by the continuance of the crime, of being themselves, and seeing their females, dragged into our Courts, and perhaps visited with the severest punishment. They see all other crimes and practices, involving lawless destruction of life, whether practised by the thug, and the dacoit, or such as the suttee, gradually succumbing, so soon as fully discovered, to British justice; and are con-

vinced that this practice, which they themselves scruple not to designate as “adhurm,” “pâp,” and “hutheeah,” i. e., wickedness, sin, and murder, will not now escape.

35. Much as has been effected by the operations which I have now described, towards the suppression of female infanticide in Agra, much still, it is evident, remains to be done, before the practise can be said to be subdued. Referring to the memorandum attached to the 29th paragraph, it will be seen that the number of girls, even now, is only half that of boys. But how could it be otherwise, when 75 per cent. of these girls are under $2\frac{1}{2}$ years of age? While the number of boys includes the natural proportion of male children, reared during eleven years. Particulars of which are given in the following memorandum:—

Total number of Thakoor Girls not exceeding 11 years of age.	DETAIL OF THEIR AGES.			
	Not exceed- ing 12 months.	From one, and not ex- ceeding two years.	Exceeding two, and not above 11 years.	
			Born prior to May 1851.	Born since May 1851.
832	181	187	377	87

Let moderate attention only be devoted to the maintenance of the present system for six or seven years longer, and I have no doubt but that the proportion of females will rise to that which obtains in other classes of the people. I am of opinion that whenever this result can be shown to have been attained in respect to any village now classed as “suspected,” it should be removed from that list, and should be relieved from the operation of the “preventive measures.” The female population is not found in any class in these provinces, I believe, to equal the number of males; and for this obvious reason, that female offsprings are by no class of natives valued

as much as male progeny: and are therefore the subjects of less care and attention. So far as I am able to judge, I believe that the enforced preservation of the Thakoor girls will, in itself, work the desired remedy and cure of those feelings which prompted their fathers to destroy them. Because as these girls must be married, and the means for effecting the illustrious matches heretofore desired are wanting, alliances with neighbouring tribes, of equal blood, must of necessity be contracted. And when family alliance, or "sugâce," with these, has once become matured, this inhuman and revolting crime, which has its main origin in the absurd pride of the Thakoor, will cease, and I trust, come to an end for ever.

36. I annex, for facility of reference, a map of the district shewing the infanticide-practising villages.

M. R. GUBBINS,

Magistrate.

*Zillah Agra Magistracy, }
The 23rd January, 1854. }*

APPENDIX No. I.

DEPOSITIONS of parties examined privately by the Magistrate of Agra, on
the subject of FEMALE INFANTICIDE.

No. I.—DEPOSITION OF BROWANY PERSHAUD, CANOONGOE OF BAH PINNAHUT, TAKEN 29TH NOVEMBER, 1852.—“The practise of female infanticide prevails throughout the whole tribes of Bhudoriah and Tonwur. Rajpoots, with few exceptions. Among the former, the Atbheyas chiefly practise it; next to them the Koolheyas: there are very few Mynoo and Tuseyla villages in the pergunnah. As for the other clans of the Bhudoriahs, (viz., Konwur Chunderseynee, Rawut,) some families in a village practise it, and some not. Many of the Parcehar tribe practise it.

The marriage of a daughter may be managed by a poor man of these tribes, at an expense of Rs. 50, and would be expended in about the following proportions:—

1.—In feeding the burât followers, or the persons accompanying the bridegroom's marriage procession, 	Rs.	25	0	0
2.—Cost of clothes and vessels given to the bride, 	„	10	0	0
3.—Amount of presents of the nayee, dho-bee, koomhar, kachy, bhât, &c., &c., who usually have fees on these occasions, 	„	15	0	0
Total,	Rs.	50	0	0

The bhâts receive presents in proportion to the general expense of the wedding. They are not given to practise any such importunity as would deserve the name of extortion. To the westward, (i. e., in Rajpootanah,) they do extort. At a wedding, which costs only Rs. 50, one bhât only will attend, and the utmost present that he would ordinarily receive is 8 annas.”

No. II.—DEPOSITIONS OF MOONNEE LALL, BRAHMIN, ZEMINDAR OF PCHAFPOOR, IN BAH PINNAHUT.—“The Atbheya and Koolheya and Konwur clans of Bhudoriahs do kill their daughters, but most of all the Atbheyas. As to the other tribes, I cannot speak positively, for none of their villages are near. In the Atbheya villages the existence of the practice may be proved by the fewness of their daughters. If they do not kill them, what has become of them? The Rawuts (Bhudoriahs) do not kill their

daughters. A poor man can marry his daughter at a charge of Rs. 50, but if he have means, he may spend Rs. 1,000 on it. Guneysh,* lumbar dar of Naycepoora, spent a few years back Rs. 800 on his daughter's marriage, the burât having come from the Kuchwaha country in Gwalior. In marriages, the following expenses are incurred, viz. :—

First.—The feed of the people accompanying the bridegroom's procession.

Second.—The presents given in money and clothes, at the initial ceremony of luggun.†

Third.—The presents in money, arms and horses, given at the occasion termed "barohee" or "durwaza," when the bridegroom and his procession arrive at the bride's door. [This is called among other classes the "shadee."]

Fourth.—The presents in money, furniture, clothes, vessels, &c., presented on the occasion of the "unk-mala or thalee," termed also "plunga," being that when the bridal procession is dismissed with the bride.

Fifth.—Something also is given to the beggars, viz., bhâts, &c.

Supposing the entire cost of the wedding to be Rs. 400 :—

1.—Feeding the burât will cost about, ...	Rs. 150	0	0
2.—The luggun, ...	" 50	0	0
3.—The barohee or durwaza,...	" 50	0	0
4.—The unk-mala and thalee, including presents to beggars, ...	" 150	0	0
Total, ...	Rs. 400	0	0

In such a wedding, the bhâts might receive Rs. 10 both sides, i. e., bridegroom and bride make presents to them, varying from eight annas to one rupee."

No. III.—DEPOSITION OF KHOSHAI, BRAHMIN, ZEMINDAR OF JERTPOOR, 29TH NOVEMBER, 1852.—Much to the same effect as the above. When asked, particularly, whether the Konwur clan of Bhudoriahs killed their infants, he replied, "I never heard of the marriage of a daughter in any of the Konwur villages; I therefore suppose that they kill them."

* See deposition of Buldeo Singh, Rawnt No. 5.

† N. B.—This is a deputation sent by the bride's family to the bridegroom, before the departure of the burât, or the fixing of the date of the shadee.

No. IV.—DEPOSITION OF FUTTEH SINGH, BRAHMIN, ZEMINDAR OF KANHURPOORA, IN BAH PINNAHUT, 29TH NOVEMBER, 1852.—“Among the Atbheya clan of Bhudoriahs, girls were universally killed before the introduction of the “preventive measures.”

It was practised a little less among the Koolheya clan. Some of the Rawuts and Chunderseynees kill them. Among the Konwurs, the dhur-rumwallas (religious,) do not kill; the bedhurries (irreligious) destroy them. A poor man's daughter's marriage can be well managed for Rs. 100, but it is not the custom in this quarter to abuse, or look down upon any one who spends little on these occasions. In a marriage costing Rs. 100, the following ceremonies cost about Rs. 60, viz.:—

Luggun,	...	...	...	Rs. 15	0	0
Durwaza,	...	...	...	„ 15	0	0
Bheynt bhalee,	...	...	...	„ 30	0	0
				Rs. 60	0	0
Feeding the burât people costs,	...	...	...	„ 40	0	0
				Total, Rs. 100	0	0

The bride's family rarely pay anything, or pay but little, to the nayees and bhats. They are paid by the bridegroom's party. The bride's family may add a few rupees, if they please.”

No. V.—DEPOSITION OF BULDEO SINGH, BHUDORIAH RAWUT, ZEMINDAR OF NAYEPOORA, IN BAH PINNAHUT.—“The Rawut clan of the Bhudoriahs do not kill their female infants. Our daughters can be married at a charge of Rs. 50. They are given in marriage to the Tonwurs and Chohans, and Kuchwahas of the neighbouring Gwalior territory, also to the Jadons and Sickurwars. Wealthy families get husbands for their daughters from among the Rajpootana Rajpoots; poorer families are content to get them from the Rajpoots of this neighbourhood and of Gwalior. Our Rawut Bhudoriah clan is very numerous in Gwalior. *When we intermarry with equal tribes, we neither demand, nor give, any considerable sums; but when we select a son-in-law of superior family, we are obliged to pay ‘buddun.’* And similarly, if we accept for our sons the daughter of an inferior tribe, we then insist on their making to us considerable payments. We spend on our daughters' marriages considerable sums, not of necessity, but as ‘poon.’” Being asked why then his father had incurred a very large outlay on the marriage of deponent's sister, who only married a Gwalior Kuchwaha, (*vide* statement made in the deposition of Moonnee Lall, Brahmin, No. 2,) he replied, that the person who married his sister was a great talooqdar in Gwalior, and on this account his father incurred so heavy an expense for the wedding.

NO. VI.—DEPOSITION OF DEWAN MOHUNDUR SINGH, BHUDORIAH ATBHEYA ZEMINDAR OF PARNA.—“Female infanticide is more or less practised in all the Bhudoriah villages; among the Atbheyas and Koolheyas, and among the rest also; cannot explain the cause of this practise. The Atbheya and Koolheya clans give their daughters in marriage to the Jadon Rajpoots of Kurolee, Kuchwaha, ditto of Jeypoor, Rhatore, ditto of Jodhpoor, Seesodia, ditto of Oodipoor; which tribes we reckon superior to ourselves.

The Atbheyas, Koolheyas and Chohans are reckoned equal. If we marry our daughters *below the first rank*, we then bestow them on the

Seyngoors,	...	...	...	Rajpoots of Etawah.
Chundeylas and Kuchwahas,	...	...	...	Ditto of Gwalior.

Briefly, our custom is to give and take daughters from equals. But in receiving girls in marriage, if money goes along with her, we accept the daughters of inferior tribes also.

The Rajpootana Rajpoots demand large sums, to induce them to come and marry our daughters; the Jadons of Kurolee only excepted, who do not demand much. But if we bestow our daughters on persons belonging to lower tribes, *ex. gr.*, the Seyngoors, the bridegroom's family make no demand whatever. Similarly, we should not expect to receive anything along with a girl of the Kuchwahas, Rhatores, or Seesodias of Rajpootana. The following question was then put by the Magistrate:—“How do you explain the fact, that the Brahmin villages of this pergunnah can afford money to marry their daughters, which the Thakoors say that they cannot, and yet the Brahmins are found to be generally in a better condition than the Thakoors?” *Reply*.—The plea of poverty, put forward by the Thakoor, is clearly without foundation. The fact is, that if the Brahmin killed his infant daughter, he would be put out of caste, while the Rajpoots do not punish the offence in the same manner. In Thakoor marriages, the dues paid to the nayee, bhât, dhobee, &c., may be reckoned at ten per cent. of the whole charge. The bhâts are chiefly paid by the bridegroom's party. They do not extort, but accept what is offered to them.”

NOTE.—It should be mentioned, in honor of this deponent's family, that it has never practised infanticide, though holding a prominent position with the rank of “Diwan” among the clan of “Atbheyas,” which is especially addicted to the crime.

NO. VII.—DEPOSITION OF GUNDHURP SINGH, BHUDORIAH, ATBHEYA, ZEMINDAR OF PARNA, IN BAH PINNAHUT.—“States that it is not uncommon in his clan, where the girl's family is content to contract an equal marriage, “burabur ki shadee,” *i. e.*, when they give their daughter to a clan no higher than themselves, to manage the marriage at a small cost, not exceeding Rs. 50 to 100. In such cases, no “buddun” payment is de-

manded, but the bridegroom is brought, accompanied by a small procession which stays but one day, and departs. "Buddun" signifies, among the Thakoors, the contract for the payment of a certain dowry (in money, horses, &c., &c.) along with the girl; which is preliminary to a contract of marriage. When we give our daughters to Thakoors of superior family or wealth, they always insist on our making a "buddun" payment. This is often the subject of much bargaining, in course of which the demand of the bridegroom's family is often greatly reduced. The nayee, bhât, porohit-brahmin, or a relative of the family, is usually employed in such negotiations. We call an equal marriage "burabur ki shadee," when we bestow our daughters on the Kuchwa Ghar in Gwalior, or to the Chohans of Mynpoorie or Jettawah. There are other neighbouring tribes, our equals, such as the Tonwurs, Seyngoors, &c., &c., but I have not heard of their receiving* our daughters in marriage. Similarly, when we take the daughters of an equal tribe in marriage for our sons, we exact no promise of "buddun," but receive anything which the bride's family choose to give as dowry along with her."

NO. VIII.—DEPOSITION OF THAKOOR BENEERAM, CHOHAN, CHOWDHREE OF SYMRA, PERGUNNAH KHUNDOWLEE, CHIEF OF A TRIBE WHICH IS KNOWN NOT TO PRACTISE FEMALE INFANTICIDE, 14TH FEBRUARY, 1853. N. B.—The evidence of Chowdhree Benecram, as being the head of a considerable tribe of genuine (usul) Chohan Rajpoots, embracing twenty-two villages in pergunnah Khundowlee of this district, who are known *not* to practise female infanticide, is especially deserving of attention:—

He states as follows:—

"The marriage of a daughter among us costs from Rs. 100 to 500, according to the father's means. Our daughters are given in marriage to the Sickurwars of Kheyragurh, and to the Ponwars of Jugneyr and Dholepore, chiefly a few also go to the Tonwars and Kuchwahas; I mean those living beyond the Jumna and Chumbul rivers. *As for the distant clans of Rujwara, on account of the distance and expense, we have nothing to do with them.*" Supposing the total expense of a wedding to be Rs. 500, the charges may be severally reckoned as follows:—

The ceremony of luggun will cost,	Rs.	100	0	0
Ditto Ditto Durwaza,	"	100	0	0
Ditto Ditto palunga and thalee or milnee,		150	0	0
Feeding the people forming the marriage procession (or buraties) and miscellaneous charges and fees,	"	150	0	0
Total,	Rs.	500	0	0

* N. B.—Most of the Athheya girls, indeed almost all, were killed.

Formerly, before the accession of the British rule, we used to be much plagued by the demands and extortion of the bhats ; but, under the British rule, such has not been the case, and $1\frac{1}{4}$ rupee is the highest fee that they receive. A trifle more may be paid by any one fancying to do so ; but it is the exception, and not the rule."

DIX No. II.

Female Infanticide, with Comparative Returns of the number of to the 31st December, 1853.

Goto, or Clan.	Total number of families.	NUMBER OF GIRLS IN THE VILLAGE.			Number of Boys under 11 years of age, on the 1st January, 1854.	EXCESS.		REMARKS.
		In May, 1851.	On the 1st January, 1854.	Increase.		Of Boys.	Of Girls.	
9.	10.	11.	12.	13.	14.	15.	16.	17.
Atbheya, ...	9	3	7	4	19	12	0	
... ..	6	4	8	4	6	0	2	
	15	7	15	8	25	12	2	
Atbheya, ...	24	2	12	10	27	15	0	
Ditto, ...	5	0	1	1	2	1	0	
	29	2	13	11	29	16	0	
Ditto, ...	13	6	10	4	9	0	1	
Ditto, ...	25	11	17	6	40	23	0	
Ditto, ...	36	4	16	12	44	28	0	
Ditto, ...	9	5	10	5	24	14	0	
... ..	6	1	6	5	4	0	2	
	15	6	16	10	28	14	2	
Atbheya, ...	36	16	26	10	30	4	0	
... ..	19	5	7	2	12	5	0	
	55	21	33	12	42	9	0	
Atbheya, ...	8	5	7	2	9	2	0	
Ditto, ...	32	7	18	11	48	30	0	
Ditto, ...	69	6	20	14	50	30	0	
... ..	8	0	2	2	6	4	0	
	77	6	22	16	56	34	0	
Koolheya, ...	5	1	4	3	12	8	0	
Ditto, ...	10	1	5	4	11	6	0	
Ditto, ...	48	2	16	14	45	29	0	
Ditto, ...	5	0	1	1	9	8	0	

*Detailed Statement of the 100 Villages suspected of practising
Male and Female Children, to the*

General Number of Village.	Pergannah.	Thannah.	Thannah Number.	Name of Village.	Name of Thake.	Caste.	
						Hill, or general designation.	Set, or Title.
1.	2.	3.	4.	5.	6.	7.	8.
15			15	Neem Danda, ...	...	Rajpoot Bhudoriah	Chohan, ...
16			16	Khichurpore, ...	...	Ditto, ...	Ditto, ...
17			17	Koonwur } Khera, }	...	Ditto, ...	Ditto, ...
18			18	Souganwa, ...	...	Ditto, ...	Ditto, ...
19			19	Pyhee, ...	...	Ditto, ...	Ditto, ...
20			20	Goslee, ...	Bagheyia, ...	...	Bagheyia, ...
					Rawut, ...	Rajpoot Bhudoriah,	Chohan, ...
21			21	Gurwar, ...	...	Ditto, ...	Ditto, ...
22	BAH PINNAHUT.	BAH.	22	Bumrolee, {	Chunderseynee & Rawut, Kuchwaha & Purechar, ...	Ditto, ...	Ditto, ...
					...	...	{ Kuchwaha & Purechar, ... }
23			23	Kohurree, {	Chunderseynee, Jadon Tonwur, }	Rajpoot Bhudoriah,	Chohan, ...
					...	...	Jadon Tonwur, ...
24			24	Bhugwanpoora, ...	Tonwur & Purechar, }	...	Tonwur and Purechar,
				<i>Total Thannah Bah,</i>			...
25			1	Peepraolee, ...	...	...	Purechar, ...
26			2	Bullace, ...	...	...	Ditto, ...
			3	Jodhpore, ...	...	...	...
27			3	Muzra Pinnahut, }	...	...	Ditto, ...
28			4	Kurkolee, ...	...	...	Ditto, ...
29			5	Reetheyee, ...	...	...	Ditto, ...
30			6	Rajora, ...	...	...	Ditto, ...
31			7	Urnouta, ...	...	...	Ditto, ...
32			8	Khurugpore, ...	...	Rajpoot Bhudoriah,	Chohan, ...

Female Infanticide, with Comparative Returns of the number of 31st December, 1853.—(Continued.)

Gote, or Clan.	Total Number of Families.	NUMBER OF GIRLS IN THE VILLAGE.			Number of Boys under 11 years of age, on the 1st Ja- nuary, 1854.	EXCESS.		REMARKS.
		In May, 1851.	On the 1st January, 1854.	Increase.		Of Boys.	Of Girls.	
9.	10.	11.	12.	13.	14.	15.	16.	17.
Koolheya, ...	5	0	3	3	2	0	1	
Konwur, ...	11	3	5	2	9	4	0	
Ditto, ...	12	3	5	2	33	28	0	
Ditto, ...	15	3	10	7	9	0	1	
Ditto, ...	7	0	2	2	7	5	0	
... ..	33	7	19	12	32	13	0	
Rawut, ...	13	2	6	4	18	12	0	
	46	9	25	16	50	25	0	
Ditto, ...	29	6	15	9	27	12	0	
Chunder- seynce, ... }	26	9	16	7	21	5	0	
... ..	30	6	14	8	26	12	0	
	56	15	30	15	47	17	0	
Chunder- seynce, ... }	9	2	5	3	14	9	0	
... ..	10	2	6	4	14	8	0	
	19	4	11	7	28	17	0	
... ..	6	4	5	1	6	1	0	
... ..	579	126	304	178	625	328	7	
... ..	136	44	85	41	113	29	1	
... ..	70	16	26	10	78	53	1	
... ..	24	12	23	11	33	10	0	
... ..	89	25	44	19	63	21	2	
... ..	7	0	0	0	7	7	0	
... ..	50	11	18	7	41	25	2	
... ..	21	8	12	4	15	4	1	
Koolheya, ...	7	0	2	2	9	7	0	

*Detailed Statement of the 100 Villages suspected of practising
Male and Female Children, to the 31st*

General number of Villages.	1.	2.	3.	Thannah number.	Name of Village.	Name of Thoke.	Caste.	
							Uti, or general designation.	Vol, or Tribe.
					5.	6.	7.	8.
33				9	Lalpoora, ...	...	Rajpoot Bhudo- riah, ...	Chohan, ...
34				10	Oomreytha, ...	...	Ditto, ...	Ditto, ...
35				11	Parkolee, ...	...	Ditto, ...	Ditto, ...
36				12	Reypoora, ...	...	Ditto, ...	Ditto, ...
37				13	Basonee, ...	...	Ditto, ...	Ditto, {
38				14	Jaora, ...	...	Ditto, ...	Ditto, ...
39				15	Rampoore Chunder- seynee, ...	...	Ditto, ...	Ditto, ...
40				16	Bureynda, ...	...	...	Tonwur, ...
41				17	Manglee, ...	Tonwur, Purcehar, ...	... ... ...	Ditto, Purcehar, ...
42				18	Reyha, ...	...	...	Tonwur, ...
43				19	Keyoree, ...	...	Rajpoot Bhudo- riah, ...	Chohan, ...
Total Thannah Pinnahut, ...								
44				1	Dhimsurree, ...	...	Gorwa, ...	Jadon, ...
45				2	Etmadpore, ...	...	Ditto, ...	Ditto, ...
46				3	Ajnoyrak, ...	...	Ditto, ...	Ditto, ...
47				4	Kootubpore Rohee, ...	...	Ditto, ...	Ditto, ...
48				5	Mahomed- pore, ...	...	Ditto, ...	Ditto, ...
49				6	Bisarna, ...	...	Ditto, ...	Dhaera, ...
50				7	Koondole, ...	...	Ditto, ...	Ditto, ...
51				8	Moyolee Khoord, Kullan, ...	...	Ditto, ...	Ditto, ...
52				9	Nuddota, ...	...	Ditto, ...	Ditto, ...
53				10	Burolee Gozur, ...	...	Ditto, ...	Tonwur, ...
54				11	Bijhaweyee, ...	...	Ditto, ...	Jadon, ...
55				12	Kolara Khoord, ...	...	Ditto, ...	Chohan, ...

Female Infanticide, with Comparative Returns of the number of December, 1853.—(Continued.)

Gote, or Clan.	Total number of families.	NUMBER OF GIRLS IN THE VILLAGE.			Number of Boys under 11 years of age, on the 1st January, 1854.	EXCESS.		REMARKS.
		In May, 1851.	On the 1st Jan'y., 1854.	Increase.		Of Boys.	Of Girls.	
9.	10.	11.	12.	13.	14.	15.	16.	17.
Koolheya, ...	11	4	5	1	7	2	0	
Ditto, ...	67	12	22	10	87	65	0	
Ditto, ...	6	0	6	6	19	13	0	
Ditto, ...	15	2	6	4	15	9	0	
Chunder- seynee, }	41	11	23	12	40	17	0	
Ditto, ...	45	18	27	9	67	40	0	
Ditto, ...	61	6	24	18	84	60	0	
...	250	65	143	78	263	121	1	
...	6	6	9	3	12	3	0	
...	5	1	3	2	5	2	0	
...	11	7	12	5	17	5	0	
...	64	9	42	33	151	109	0	
Rawut, ...	13	3	8	5	16	8	0	
...	988	253	528	275	1125	605	8	
Bhuddeysura,	91	38	59	21	70	11	0	
Ditto, ...	34	13	25	12	26	1	0	
Ditto, ...	78	24	44	20	69	25	0	
Ditto, ...	8	2	5	3	7	2	0	
Jhunjhar, ...	30	5	14	9	33	19	0	
Ditto, ...	119	34	60	26	118	58	0	
Ditto, ...	26	9	17	8	35	18	0	
Ditto, ...	131	69	95	26	125	30	0	
Ditto, ...	46	15	22	7	42	20	0	
Inndoleca, ...	153	61	99	38	170	71	0	
Jassawut, ...	102	24	45	21	112	67	0	
Dhittia, ...	38	14	22	8	47	25	0	

*Detailed Statement of the 100 Villages suspected of practising
of Male and Female Children,*

General Number of Village.	Pergunnah.	Thannah.	Thannah Number.	Name of Village.	Name of Thoke.	CASTE.		
						Ull, or General designation.	Zet, or Tribe.	
1.	2.	3.	4.	5	6	7	8	
56	FUTTEHABAD.	FUTTEHABAD.	13	Neecha	Rajpoot,	... Jadon, ...	
			Khera, }					
57			14	Khundeyr, Chohan, ...
58			15	Nagur, Ditto, ...
59			16	Ruhaolee, ... ..	... ..	... Pureehar, ...
				Total, Thannah Futtehabad,		
60	ERADUTNUGGUR.	ERADUTNUGGUR.	1	Kookawur, ... ..	... ..	... Dhaera, ...
61			2	Nudeem, ... ..	... ..	... Ditto, ...
62			3	Sikunder- poor, ... }	... ..	... Ditto, ...
63			4	Tehra, ... ..	... ..	... Ditto, ...
64			5	Beereye, ... ..	... ..	... { Dhaera and } Sickurwar, }
65			6	Bisehra, ... ..	... Gorwa,	... { Dhaera and } Kuchwaha, }	
66			7	Gurhee Sreepnt, }	... Gorwa,	... Dhaera, ...		
67			8	Huounda, ... ..	... Ditto,	... Ditto, ...	
68			9	Buheyta, ... ..	... Ditto,	... Tonwur, ...	
69			10	Dugneyr, ... ..	... Ditto,	... Ditto, ...	
70			11	Hurnahur, Newada } Khera, }	... ..	... Ditto, ... Ditto, ...
71			12	Tehreye, ... ..	... Ditto,	... Ditto, ...	
72			13	Islampore, ... ..	... Ditto,	... Jadon, ...	
73			14	Thannah Shunkur- dwaree, }	... ..	... Ditto, ... Ditto, ...
74			15	Gursahun, ... ..	... Ditto,	... Chohan, ...	
75			16	Nugla Patun, ... ..	... Ditto,	... Kuchwaha, ...	
76	17	Phoolpore, ... ..	... Ditto,	... Ditto, ...			
77	18	Puttee Shamilat } Sikturra, }	... ..	... Sickurwar,	... Burgoojur, ...	
				Total, Thannah Eradutnuggur,		

Female Infanticide, with Comparative Returns of the number to the 31st December, 1853.

Gote, or Clan.	Total Number of families.	NUMBER OF GIRLS IN THE VILLAGE.			Number of Boys under 11 years of age, on the 1st Ja- nuary, 1854.	EXCESS.		REMARKS.
		In May, 1851.	On the 1st Jan'y., 1854.	Increase.		Of Boys.	Of Girls.	
9	10.	11.	12.	13.	14.	15.	16.	17.
Dhittia, ...	66	14	23	9	54	31	0	
... ..	79	30	42	12	80	38	0	
... ..	5	1	2	1	4	2	0	
... ..	11	2	3	1	10	7	0	
... ..	1017	355	577	222	1,002	425	0	
... ..	4	3	5	2	12	7	0	
... ..	23	14	22	8	27	5	0	
... ..	21	5	8	3	17	9	0	
... ..	67	22	35	13	33	0	2	
... ..	28	7	13	6	27	14	0	
Jhunjhar, ...	53	17	28	11	52	24	0	
Jhunjhar, ...	25	4	12	8	56	44	0	
Ditto, ...	45	8	19	11	43	24	0	
Indoleca, ...	86	2	19	17	89	70	0	
Ditto, ...	100	25	41	16	81	40	0	
Ditto, ...	143	20	46	26	135	89	0	
Ditto, ...	57	20	41	21	48	7	0	
Bhuddeysura, ...	31	10	11	1	29	18	0	
Ditto, ...	112	35	54	19	94	40	0	
Dhittia, ...	38	3	8	5	32	24	0	
... ..	160	52	93	41	150	57	0	
... ..	52	17	29	12	47	18	0	
... ..	24	11	14	3	32	18	0	
... ..	1,069	275	498	223	1,004	508	2	

*Detailed Statement of the 100 Villages suspected of practising
Male and Female Children,*

General number of Village.	Pergunnah.	Thannah.	Thannah number.	Name of Village.	Name of Thoke.	CASTE.	
						Ull, or General designation.	Zat, or Tribe.
1.	2.	3.	4.	5.	6.	7.	8.
78	KHYRAGURH.	KHYRAGURH.	1	Ayela, ...	...	Sickurwar, ...	Bharadwaj, ...
79			2	Bhilalolee, ...	...	Ditto, ...	Ditto, ...
80			3	Burwur, ...	...	Ditto, ...	Ditto, ...
81			4	Nugla Kamal (Surheyunda), ...	...	Ditto, ...	Ditto, ...
82			5	Dunkussa, ...	...	Ditto, ...	Burgoojurs, ...
83			6	Sone, ...	...	Ditto, ...	Ditto, ...
Total, Thannah Khyragurh,							...
84	KHYRAGURH.	JUGNEYR.	1	Burganwa } Boozoorg, }	...	...	Ponwar, ...
85			2	Burganwa } Khoord, }	...	...	Ditto, ...
86			3	Busseye, } Jugneyr, }	...	...	Ditto, ...
87			4	Dhuneena, ...	...	...	Ditto, ...
88			5	Googawend, ...	...	...	Ditto, ...
89			6	Jullalpoor, ...	...	...	Ditto, ...
90			7	Nugla } Beerbhan, }	...	...	Ditto, ...
91			8	Nugla Kasimpoor, ...	...	...	Ditto, ...
92			9	Singaitch, ...	...	...	Ditto, ...
Total, Thannah Jugneyr,							...
93	FEROZABAD.	FEROZABAD.	1	Alehdadpoor, ...	...	...	Aheers, ...
94			2	Bijeypoora, ...	...	...	Ditto, ...
95			3	Dutalee, ...	...	...	Ditto, ...
96			4	Sukheyra, ...	...	...	Ditto, ...
97			5	Nurkapoor, ...	...	...	Ditto, ...
98			6	Rancepoor, ...	...	...	Ditto, ...
99			7	Ferozabad, ...	...	...	Ditto, ...
Total, Thannah Ferozabad,							...
100	NARKEE.	NARKEE.	1	Piprolee, ...	...	...	Chohan, ...
100							

Female Infanticide, with Comparative Returns of the number of to the 31st December, 1853.

Gote or Clan.	Total number of families.	NUMBER OF GIRLS IN THE VILLAGE.			Number of Boys under 11 years of age, on the 1st January, 1854.	EXCESS.		REMARKS.
		In May, 1851.	On the 1st Jany., 1854.	Increase.		Of Boys.	Of Girls.	
9.	10.	11.	12.	13.	14.	15.	16.	17.
...	...	38	6	11	6	40	29	0
...	...	78	8	22	14	63	41	0
...	...	72	16	24	0	76	52	0
...	...	33	6	9	3	40	31	0
...	...	37	13	29	16	34	5	0
...	...	52	18	24	6	57	33	0
...	...	310	67	119	45	310	191	0
...	...	55	13	19	6	47	28	0
...	...	84	44	45	1	86	41	0
...	...	81	36	40	4	83	43	0
...	...	37	10	10	0	32	22	0
...	...	73	26	30	4	53	23	0
...	...	19	6	11	5	23	12	0
...	...	72	23	36	13	60	24	0
...	...	28	7	12	5	29	17	0
...	...	120	38	44	6	150	106	0
...	...	569	203	247	44	563	316	0
Mullunia, ...	58	20	40	20	80	40	0	
Ditto, ...	21	14	19	5	23	4	0	
Ditto, ...	159	60	90	30	117	27	0	
Ditto, ...	50	18	38	20	60	22	0	
Phatuck, ...	54	14	23	9	45	22	0	
Ditto, ...	43	17	26	9	39	13	0	
Goondowa, ...	128	56	93	37	181	88	0	
...	513	199	329	130	545	216	0	
...	18	1	7	6	22	15	0	
TOTAL, ...	5,063	1,479	2,609	1123	5,196	2,604	17	

APPENDIX No. III.

INSTRUCTIONS issued to the POLICE OF AGRA, for the suppression of FEMALE INFANTICIDE, submitted for the approval of the Nizamut Adawlut, N. W. P., with the Magistrate's letter No. 63, dated the 14th March, 1853.

INSTRUCTIONS TO THE POLICE OFFICERS.

I.—They shall cause the several engagements, as per forms annexed, to be executed by the lumberdars, heads of families, putwarees, chowkeedars, bullahurs, and midwives of the villages which have been declared to lie under the suspicion of practising Female Infanticide, and shall send these engagements for record to the Magistrate's Court; the provisions relating to the use of silver medals are believed to be generally acceptable, but if objection be taken to them, they may be omitted.

II.—They shall exert themselves to cause the above parties to act up to their engagements, as also to cause the thannah darogahs, and subordinate police officials in charge of outposts, to act up to the several instructions which are issued for their guidance.

III.—They are responsible for causing the sufficient testing and examination of the half-yearly and monthly census returns of the children of Thakoor families in suspected villages, taking such steps as they shall think necessary to ensure correct returns.

IV.—They shall keep a watch over the village police, and where they find sufficient reason for believing that a chowkeedar connives at the commission of female infanticide, and fails to render true information, they shall propose his dismissal or removal for the approval of the Magistrate.

V.—It shall be the police officer's duty to examine carefully the census returns of Thakoor girls; and wherever, in any family, he shall observe an extraordinary preponderance of boys, to send and make enquiry, to ascertain whether the head of that family lies under the suspicion of practising infanticide, reporting the result of his enquiry for the orders of the Magistrate.

VI.—In case of the body of any female child being sent in to the thannah, in consequence of suspicion attaching of its having been destroyed, the police officer shall personally examine the body, and ascertain the circumstances of suspicion adduced. If he shall consider these to be insufficient, he shall restore the body to the parents. If, according to Clause 12, Section 14, Regulation XX of 1817, it be necessary to send the body to the Court, he shall forward it immediately, noting any suspicious appearances which it may present, to assist the examination by the Civil Surgeon.

VII.—He shall cause the purport of these rules to be carefully explained generally; and specially to any parties called upon to engage for their

observance. A Hindsee copy of the several forms of engagement shall be inscribed in the bulhee of the putwaree of each suspected village; and he shall cause the Hindsee copies which are sent from the Magistrate, accompanying purwannahs to the most influential zemindars in the pergunnah, to be duly delivered; and shall cause a copy of the instructions to the naib thannah darogahs, and subordinate outpost officers, to be written out fair, and hung up in the thannah or outpost.

VIII.—In submitting the half-yearly census returns of girls, prepared by the thannah officers, the police officer shall submit a brief report, noticing—

1st,—The progress made towards the suppression of this crime in the preceding six months.

2nd,—The comparative number of girls at the beginning and close of the period.

3rd,—The result of the operation of each rule, whether it has worked well, or requires any, and what alteration.

4th,—Any cases that have particularly come to notice in the six months, either of infanticide committed, or prevented; and generally any fact bearing upon the crime generally.

INSTRUCTIONS FOR THANNAH DAROGAHS AND OUTPOST OFFICERS.

I.—A list of the villages which have been declared to be “suspected of infanticide” by the Magistrate, shall be written out fair, and hung up on the thannah; any subsequent additions or deductions therefrom being carefully added. Similarly a list of the suspected villages situate in the charge of each police outpost, shall be written fair, and hung up in that outpost.

II.—A copy of the instructions to thannah darogahs, and zemindars and others in the suspected villages, shall also be recorded in the thannah and outposts.

III.—The darogah and other of his subordinate officers, specially those in charge of police outposts near to suspected villages, and at a distance from the thannah, shall exert themselves to their utmost to prevent the commission of Female Infanticide; and shall keep themselves informed, as far as possible, of the state of this crime in each suspected village subordinate to them, marking the general opinion as to its prevalence or suppression in the families of each village.

IV.—The following system of registration of births, and deaths, of children in families of suspected villages, shall be maintained. There shall be kept:

1st.—A daily register of births and deaths in subjoined Form I. For this purpose a register shall be kept, allowing two leaves for each village. Entrance shall be made by the mohurrir immediately on information of a

birth or death being received, and, if possible, a Hindee memorandum of the occurrence shall be obtained from the village putwaree, according to which entry shall be made.

2nd.—A monthly memorandum, being a copy of his daily register of births and deaths, shall be obtained from the putwaree of each suspected village, from which the memorandum No III. (form annexed) shall be compiled, and shall be submitted before the 10th of each month from the thannah to the Magistrate's Office.

3rd.—Complete half-yearly registers shall be obtained in Hindee from the village putwarees, in the Form No. II subjoined. These shall be translated into the Oordoo character, as soon as possible after the 1st January and 1st July of each year, and tested on the spot by the darogah himself, or some other subordinate trustworthy person, and then shall be submitted in copy to the police officer, the original being kept in the thannah.

4th.—A register of the issue and restoration of medals in the annexed Form IV, a copy of which shall be sent monthly to the Magistrate's Court.

V.—In submitting the monthly or half-yearly statement, should any fact of interest, connected with the prevalence or disuse of infanticide, have intermediately come to the darogah's knowledge, he shall briefly submit a kyfeent, mentioning the same.

VI.—In the event of information being received at the thannah, or police outpost, that the female infant of a suspected Thakoor family is sickening from measures taken by its parents to destroy it, the darogah, mohurrir, or chowkee officer, shall proceed to the village, and, if possible, see the infant, and warn the parents to preserve its life in every proper way.

VII.—In event of information being received at the thannah or police outpost, of the death of female infant under six months of age, belonging to a suspected Thakoor family, the darogah, mohurrir, or chowkee officer, shall proceed to the village, to see the body of the infant; and if there appear grounds for believing that it has been destroyed, shall cause the body to be immediately sent for the examination and orders of the Officer of police.

FORMS of ENGAGEMENTS taken from Zemindars and others, for the suppression of FEMALE INFANTICIDE.

FORM OF ENGAGEMENT TO BE TAKEN FROM THE ZEMINDARS OF THAKOOR VILLAGES, SUSPECTED OF INFANTICIDE, ON STAMP PAPER.

I.—We will discontinue the crime of infanticide in every way in our power, both by endeavouring to prevent its commission, and by exerting ourselves to bring offenders to punishment. We specially bind ourselves to the observance of the rules following :—

II.—We will, as far as we can, keep ourselves informed of every Thakoor female who is in a state of pregnancy. We will discourage, and prevent as far as we can, the removal of any pregnant female from the village, with a view to her being confined at a distance from her house. And where such removal does occur, we specially bind ourselves to report the fact to the thannah, specifying the village and thannah to which she has been removed.

III.—If any pregnant Thakoor female, of a suspected village, be brought for her confinement to our village, we bind ourselves to report her arrival to the thannah, and also to keep ourselves informed, and to report to the thannah if she is delivered of a female child; warning the parents against female infanticide.

IV.—We will use our utmost influence to cause the heads of suspected Thakoor families, the village chowkeedars, the putwarees, and the village midwives, to act up to the tenor of their several engagements in this matter.

V.—Whenever a female child is born in a suspected Thakoor family, we will cause a report of the circumstance to be made immediately to the thannah, and to the nearest police chowkee; and we will cause the birth to be registered in the putwaree's buhee, and we will ourselves see the infant and exhort the father to preserve it, and especially to cause its mother to nurse the infant herself, so soon as she is capable of doing so. We will also assist at the ceremony of hanging the silver medal received from the thannah round the infant's neck.

VI.—We will watch over the female Thakoor children of our village, till they attain the age of six months; and if, during this period, a female child becomes ill, we will endeavour to ascertain whether she has really sickened, or whether there be good ground for suspecting the parent of intentionally starving, or administering any substance for the purpose of destroying the child. Should good grounds be found for such suspicion, we will immediately cause information to be given to the thannah, or to the nearest police station; and on arrival of the police, will assist them in warning the parent, as far as we can.

VII.—In the event of a female child, of a suspected Thakoor family, dying within the age of six months, we will at once report the circumstance to the thannah, or the nearest police station; and we will not permit the child's body to be interred or burnt, until it has been inspected by the police.

VIII.—We will cause the village putwaree to keep up, and to supply monthly to the thannah, a register of the children of suspected Thakoor families, in the prescribed form. We will ourselves inspect it, and some of us sign it. We will also keep an eye on any families of suspected

practice, the returns of which exhibit a suspicious absence of girls, as compared with boys. We will remonstrate with the heads of families exhibiting this suspicious disproportion; and we will inform the thannahdar of our suspicions.

FORM OF ENGAGEMENT TO BE TAKEN FROM THE HEAD OF EACH SUSPECTED
THAKOOR FAMILY, ON PLAIN PAPER.

I.—I promise neither myself to commit, nor to suffer any of my family to commit, the crime of infanticide upon any female child born in my family, whether by administering poisonous drugs or substances; by drowning, suffocation, exposure, or by starving the child; but on the contrary, I will preserve and nourish every such female child, to the best of my ability. I specially engage to observe the following conditions:—

II.—I will not remove my wife to be confined at a distance from her village, in order to conceal the birth of a female child; but if it become necessary that my wife should be removed for her confinement elsewhere, I will report the circumstance to the thannah, both through the lumberdars and chowkeedars of the village from which I remove her, and also through the lumberdars and chowkeedars of the village to which she is removed.

III.—Should any Thakoor female belonging to a suspected family be brought to my house in a state of pregnancy, in order to be confined, I will inform the thannah both of her arrival, through the lumberdar and chowkeedar, and also if she be confined of a female child, I will immediately report the circumstance in like manner.

IV.—If a female child be born to me, I will immediately inform the lumberdar and the thannah, through the chowkeedar or bullahur, and I will cause the registry of birth to be made in the putwaree's buhee. I also bind myself to cause the infant to be nursed by her mother, so soon as she is capable of doing so.

V.—I will also myself repair with the chowkeedar to the thannah, and receive one of the silver medals* there deposited, and on returning to

* These medals are small silver medals, with the words "Eshwur Sahaye," or "God, thy Preserver," struck upon them in Hindwee characters. They have a small silken cord attached to them, to allow of their being hung, as native medals are, about an infant's neck. These medals and cords cost a little less than one rupee each, and have been made up at the cost of Government. Their use has been highly approved, and recommended by every Thakoor to whom I have spoken.

MEMORANDUM.—The issue of medals having been as yet introduced only into the Bah Pinnahut pergunnah, Rule No. V is only proposed for that pergunnah; and it is left optional to any person to reject this Clause.

the village, I will cause it to be hung about the infant's neck, in presence of the lumberdar and chowkeedar. Should the child die before her marriage, I will report the same and return the silver medal to the thannah; otherwise it shall be worn by the child until her marriage.

VI.—Until the child attains the age of six months, I engage to report to the lumberdar, and to the thannah or nearest police chowkee, through the chowkeedar or bullahur, in the event of its sickness, and to allow the child to be seen, if required, and to afford every facility to such enquiry into the cause of sickness, as may appear to be necessary.

VII.—In the event of a female child dying in my family under the age of six months, I engage to report the circumstance at once to the lumberdar, and to the thannah through the chowkeedar or bullahur; and also to register the death in the putwaree's buhee: and I engage not to allow the child's body to be buried or burnt until it has been seen by the police, and such inquest has been held upon it as may appear necessary.

FORM OF ENGAGEMENT TO BE TAKEN FROM THE VILLAGE PUTWAREES, ON
PLAIN PAPER.

I.—I engage to use my best efforts to prevent the commission of infanticide in the village, and also to facilitate the punishment of those who may commit it, and I specially bind myself to the following rules:—

II.—I will keep up a daily register of all births and deaths of children occurring in suspected Thakoor families, in the annexed Form, marked I, and do my best to obtain correct and early information of every such occurrence; and I will enter in the column of remarks, such information as may be given me as to the child's condition when born, and whether the dayee reported on the third day that the infant was suckled by its mother or the contrary.

III.—I will furnish, by the third of each English month, a copy of this daily register for the past month with my signature, and the signatures of some of the headmen of the village, to the thannah.

IV.—I will prepare every half-year, and I will furnish by the fifteenth of the following month to the thannah a copy thereof, a register of the children of the suspected Thakoor families in the annexed Form No. II, together with two memorandums of the girls actually living in the village at the close of each half-year, and of those surviving from the preceding half-year in the Forms A and B, appended to Form II.

V.—I will keep up a register of the medals received, and returned to the thannah, consequent on the birth and death of female children, in the annexed Form No. IV.

84. SELECTIONS FROM THE RECORDS OF GOVERNMENT.

FORM OF ENGAGEMENT TO BE TAKEN FROM THE VILLAGE CHOWKEEDAR AND BULLAHUR, ON PLAIN PAPER.

I.—I engage to do my best to prevent the practise of the crime of infanticide, and to detect and bring to punishment any person committing this crime. I specially engage to observe the following rules:—

II.—I will keep a watch to ascertain if any suspected Thakoor female shall be removed in a state of pregnancy from the village, in order to be secretly confined at a distance; or if any such female be brought from another village, to be confined in this village; and I will cause a report to be made to the thannah, of any such circumstance.

III.—On the occurrence of a birth of a female in a suspected Thakoor family, I will personally report the circumstance to the thannah, and bring, if possible, the father of the child with me, and cause him to receive from the thannah authorities one of the silver medals there deposited, and, on returning to the village, will cause the same to be placed round the infant's neck, in presence of the lumberdars, the parent, and myself.*

IV.—Until each female child attains the age of six months, I shall, as far as far I can, watch over it, enquiring after it, and seeing it when possible. Should it sicken, I will cause information to be given to the nearest police station. And should it die before attaining the age of six months, I will cause the thannah to be informed, and prevent the body being buried or burnt, until the police have seen it.

V.—I will cause the putwaree to be duly informed of every occurrence of a birth or death in a suspected Thakoor family, that it may be entered in his register.

FORM OF ENGAGEMENT TO BE TAKEN FROM THE VILLAGE DAYEES OR MIDWIVES, ON PLAIN PAPER.

I.—I promise to do my best to prevent the crime of infanticide; never myself to connive at its commission, and, when committed, to give every information in my power to assist in bringing the criminals to punishment. And I specially bind myself to the following conditions:

II.—Whenever I assist at the delivery of a Thakoor female of a female child, I will, within twelve hours afterwards, in person, inform the chowkeedar and the bullahur, and, if possible, the putwaree also: and state whether the child be full-grown and healthy or not.

* MEMORANDUM.—This proviso will at present extend only to Bah Pinnahut, and will be optional to the parent.

III.—If the child should die, before my attendance upon the female has ceased, I will similarly inform the chowkeedar and bullahur in person within six hours after the event, and if possible the putwaree ; and I will truly inform them of every circumstance which has come to my knowledge relating to the child's death.

IV.—On the third day after the child's birth, I will use my endeavors to induce the mother to give suck to the infant before myself, and I will inform the chowkeedar and bullahur before evening of that day, whether this has been done.

V.—If any birth should occur in any of the Thakoor families ordinarily attended by me, without my being called in, and I become informed of it, I will immediately report the same to the chowkeedar, and to the bullahur of the village.

APPENDIX No. IV.

Forms of Registers and Returns for the Villages of the Agra District suspected of the practice of Female Infanticide.

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Forms of Registers and Returns for the Villages of the Agra District suspected of the practice of Female Infanticide.

No. I.

Forms of Registers and Returns for the Villages of the Agra District suspected of the practice of Female Infanticide.

DATE.		Thoke.	Number of families corresponding with Half-yearly Census Statement.	Name of the heads of the family, or with Caste, or Gote.	BIRTHS OF CHILDREN.		DEATHS OF CHILDREN.		Remarks containing any particulars also the Name, and of the midwife who attended.
English.	Hindee.				Male.	Female.	Male.	Female.	
February 21st.	Magh Soody teyras.	Atbhoya.	27	Sunrut Singh, Atbhoya.	0	1	0	0	Hoolaso, dayee, the birth She reported, and to the chowkeedar, and also that the mother had nursed* the child on the third day.

Once nursed by the mother, they never, or very rarely, destroy it.

* It is the practice of the Bhudoriah Rajpoots not to allow the mother to nurse an infant that is to be destroyed.

No. II.
Form of Half-yearly Register of Children.

Village.	Name of Thoke.	Number of Family.	Name of head of family with Caste or Gote.	NUMBER OF BOYS UNDER 11.										NUMBER OF GIRLS UNDER 11.										Increase or decrease of Girls in the past six months shewn by comparison of Columns 12 and 18.	Decrease.	Increase.	REMARK.					
				Number of last half-yearly Census.	Born in this half-year.	Total number.	Deaths in the half-year.	Boys who have passed the age of 11.	Total.	Present number on the 1st July.	Number by last half-yearly Census	Born in this half-year.	Total number.	Deaths in the half-year.	Married and left the village.	Total number to be deducted.	Deduct.	Present number on the 1st July.	Excess of Boys over Girls.	Excess of Girls over Boys.	Comparison of the present number of Boys and Girls, of the entries in Columns 11 and 18.											
Futtelpore,	Atbheya,	27	Sumrut Singh, Thakoor Atbheya, Newul Singh, Thakoor Konwur,	5	0	2	0	0	0	10	2	11	12	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0
		28		3	0	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0

NOTE.—The Putwarce is required to compile this statement in Hindco, and give it in at the thannah immediately after the close of the half-year, accompanied by two memoranda, as per Forms A and B, giving the details of Columns 11 and 18. It is translated by the thannah Mohurrirs and Mududgars, one copy lodged with the Officer of Police and the second sent in to the Magistrate.

MEMORANDUM A.—To accompany Half-yearly Register No. 2, shewing detail of Boys in Column II.

Number of Boy.	Name of Father.	Caste or Gote.	Age of Boy.	
1	Gopal Singh, ...	Atbhaya, ...	5 Years.	.

MEMORANDUM B.—To accompany the Half-yearly Register No. 2, shewing the details of Girls in Column 18.

Number of Girl.	Name of Father.	Caste or Gote,	Age of Girl.	
1	Zalim Singh, ...	Atbhaya, ...	18 Months.	

No. IV.

Monthly Register of Medals.

Village.	Thoke.	Family Number.	Name and Caste of head of Family.	Date of Receipt of Medal.		Date of Restoration of Medal.		Remarks.
				English Date.	Hindoo Date.	English Date.	Hindoo Date.	
								Continued on next page, and added to only a date.

No. V.

Abstract Comparative Half-yearly Statement to be prepared by the Township Officers, and submitted to the Magistrate.

Number.	Name of Village.	Name of Thoke.	Total number of suspected families.	Number of original number of persons.		Number of persons actually residing in the village at the close of the half-year.	Number of persons actually residing in the village at the close of the half-year.
				Original number as contained in the list of persons actually residing in the village at the close of the half-year.	Number actually residing in the village at the close of the half-year.		
1	2	3	4	5	6	7	8
2	Futcheepoor, ...	...	29	2	13	11	10

SEAP
of the
District

*Showing the V
surprise of the
Practice
of Foma
INFANTICI*

(Signed)



GOVERNMENT BOTANICAL GARDENS.

NO. 1.

REPORT ON THE WORKING OF THE BOTANICAL GARDENS AT SEHARUNPOOR, DURING THE YEAR 1861.

By DR. W. JAMESON, *Surgeon Major, Superintendent Botanical Gardens, N. W. Provinces.*

IN forwarding, for the information of the Hon'ble the Lieutenant Governor, a detailed statement shewing the distribution of Plants and Seeds from the Botanical Garden, Scharunpore, during the last season, I beg to offer a few brief observations on the manner in which the works have been carried on :—

2. From March 1st to 21st November, I was absent on medical certificate, during which time my duties were actively carried on by Doctor J. L. Stewart.

3. The large number of Plants, or parcels of Seeds, distributed will, I trust, prove that the department has been energetically conducted. From Calcutta to Peshawur there is scarcely a Horticultural or Agricultural Institution which has not more or less been benefited by the receipt of Plants or Seeds. By the abstract appended it will be perceived that 1,15,437 Fruit trees, 58,058 Timber trees and Flowering Shrubs, and 1,616 parcels of Seeds were, during the season, distributed to applicants.

4. Amongst the chief applicants we may mention the Superintendents of the Public Gardens, Calcutta, Madras, Neilgherries, Lucknow, Umritsur, Lahore, Jullunder, Deyrah Dhoon, Umballah, Peshawur, &c.; the Commanding Officers of Her Majesty's Regiments and Batteries from Benares to Peshawur; Officers in charge of districts; Officers in charge of Jails, to all of whom liberal supplies of Seeds or large numbers of Plants have been given. To several of the chief public Institutions and

many private individuals in Britain large supplies of Pine and other hardy timber Seeds have been distributed. To Dr. Forbes Watson, the Examiner of Indian Vegetable products at Her Majesty's India Office, London, large supplies of coniferous Seeds have been given to meet the great demands for them which still prevail in Britain, the Deodar among the number, and one of the handsomest trees in the Pine tribe, being still as popular with the public as when it was first introduced. To many private establishments as Messrs. Low, of Clapton; Messrs. Veitch and Co., Exeter, &c.,—I have also distributed Pine and other hardy Seeds on the understanding that they would reciprocate. A similar arrangement has been made with several public Institutions. Nor have native sirdars and gentlemen throughout the North-Western Provinces been neglected, as is shewn by upwards of a hundred requisition from them for large supplies of Seeds and Plants having been complied with.

5. In return for our Seeds, the Superintendent Botanical Garden, Calcutta, has supplied us with three ward-cases filled with Plants desiderated by the Gardens, North-Western Provinces. To His Excellency the Governor of the Ionian Islands, at the request of Dr. Hadaway, H. M.'s Inspector General of Hospitals, Bombay, a fine collection of Pine Seeds; and for the Italian Minister Count Ricasoli, two large parcels of Pine Seeds have, by desire of Her Majesty's Secretary of State, been forwarded. In return for the Seeds, the Governor of the Ionian Islands has forwarded a Wardian-case of young Olive Trees (*Olea Europa*.)

6. To meet the immense demand for Seeds for Soldiers' Gardens, a new garden, sanctioned by the Hon'ble the Lieutenant-Governor, has been formed at Chejowree, in the Himalayas, and by its assistance indents to an unlimited extent can now be supplied.

7. In my last Report I stated that many kinds of Seeds, when acclimatized in this country, degenerated in

two or three seasons, particularly those belonging to the umbelliferous and cruciferous families; and, in order to keep up the character of the Gardens for distributing good Seeds, I brought to the notice of the Hon'ble the Lieutenant-Governor that it would be necessary to import at intervals fresh Seeds from England, the Cape, or America to renew the stock. Concurring with this view, the Right Hon'ble the Governor-General in Council moved Her Majesty's Secretary of State for India to order a supply to be sent, and when in England I was requested to mention the kinds of Seeds most required. I therefore furnished Dr. Forbes Watson with a list, and by him, acting under the orders received from the India Office, three cases of Seeds were forwarded to Calcutta, and have reached Seharunpoor in excellent condition, some of which have been sown and others forwarded to the Hill Gardens. To a Parisian house,—Vilmorin Andriena and Co.,—I have also forwarded an extensive collection of Vegetable and Flower Seeds in exchange for Pine and other hardy Hill Seeds, which have also assisted to stock the Gardens with good Seeds.

8. *En route* to England I visited the Island of Malta. Here I find growing in the most barren, stony, and dry places the Carob tree (*Gertanea Sitayna*), which seeds immensely. By the poorer classes it is ground and mixed with grain, and when baked in the oven it is anything but disagreeable. In seasons of scarcity it is, therefore, much used by the poorer inhabitants. It, too, is constantly given to horses and mules, in the proportion of one measure Carob Beans to two measures of Barley, and on this food they both work and thrive well. I have, therefore, brought to India a large quantity of Seed, and have raised a number of plants in order that its value may be tested in the dry places of the North-Western Provinces. On the Islands, too, I also found a species of clover growing everywhere, and far superior to any green fodder met with

in India. It is there named *sullah*, and is a species of hedy-sarum, the II, coronarium; of it I have also brought a quantity in order to have it tried. In Malta it grows to a height of from four to five feet, and yields an immensely heavy crop; forms green forage for horses and mules, and is also dried and used as hay in the winter. When in full flower in April and May, it presents a very fine appearance.

9. FLAX SEEDS.—In my letter to you No. 65, dated 1st February, I mentioned the steps taken by me when in England to procure Flax Seeds. In compliance with the orders contained in your letter No. 274, dated 14th March, 1861, I applied to Mr. H. Field, in St. Petersburg, to procure for me the Seeds from Livonia, and by him a ton and a quarter of fresh Seeds were obtained from Riga, packed in double-hempen bags, which were again covered with buss mats to protect them from rain, and shipped to London. On arrival there, they were, by orders of Her Majesty's Secretary of State for India, sent by the Overland route to Calcutta, from whence they were forwarded by steamer and Bullock-train to Seharunpoor. Before their arrival the season had far advanced. I, therefore, fearing that from this cause the Seed might not germinate freely, only sowed half of the quantity imported. But my caution was unnecessary, as every seed germinated, and I reaped as fine a crop in April as any that I had seen last season in Ireland, proving the value of imported Seeds and the importance of having them sent by the Overland route. By this route, owing to the changing of the packages from the vessel to the rail at Alexandria, and from the rail to the vessel at Suez, the seeds are constantly exposed to the air, and thus reach Calcutta in good order. Seed, on the other hand, sent in ships by the Cape route, owing, no doubt, to heating when packed in the hold, invariably fail to germinate, as was the case with the fifteen tons of Flax Seeds sent by the Indian Flax Company round the Cape to Kurrachee, and then to Sealkote. When I visited,

by orders of the Punjab Government, Sealkote in March last, I found all these Seeds lying in godowns and perfectly useless, barring for making oil and cake. To encourage the cultivation in the Punjab and indemnify the Flax Company for the loss sustained, Her Majesty's Secretary of State for India has granted to the Company Rs. 10,000 for two years, conditionally that they raise money to carry on operations for three consecutive years. It is not my intention at present to ask any further support from the Hon'ble the Lieutenant-Governor in the form of European scutchers from Her Majesty's Regiments, as the crop raised is only one-half of the quantity which was proposed to be grown. I shall, therefore, have the Flax Straw carefully stacked, the Seeds having already been removed, and prepare it as soon as I have a quantity in hand to justify me to make application to Government for aid in preparing. All the Seed therefore of the present crop will be preserved for my own purposes, and in the ensuing season I shall be prepared to issue to private parties Seeds in quantity. The Rowan Flax-Scutching machine, too, has not yet reached Seharunpoor, and may be expected in the course of the month, which will assist greatly the operations in preparing the Flax. To Mr. Macleod, Financial Commissioner of the Punjab, I forwarded a small sample of the Flax grown this season, in order that it might be examined by Mr. Wightman, which was done, and pronounced by him to be very fine Flax Straw, and admirably fitted for making fibre for the home market. To make, however, any speculations would be premature at present; I may, however, state that the importation of Seed could not have been more successful. In the Punjab, His Honor the Lieutenant-Governor has sanctioned an expenditure of Rs. 500, for prizes to be distributed by the District Authorities for the best Flax Fibre Straw produced by native cultivators as soon as acclimated Seeds can be distributed to natives of the North-Western Provinces. I shall respectfully solicit the Hon'ble the

Lieutenant-Governor to countenance in a similar manner the cultivation in his kingdom.

10. But Flax is not the only fibre which deserves the attention of Government. There are many others. Nowhere, however, is there a collection of the raw products of the North Western Provinces to be met, and it is only on pressing and extraordinary occasions, such as an European war causing a dearth to the British looms, that attention is paid to the fibres and fibrous stuffs of India. Attached to all the great public Botanical collections in Europe, there is now an economic Museum, in which are exhibited all the raw materials belonging to the vegetable kingdom, in the form of different kinds of woods, fibres, seeds, fruit, oils, gums, resins, sugars, food-yielding substances, medicinal substances, dyes, or in other words, a collection not only interesting but practically useful to parties of all professions. In India, nowhere does such a collection exist, and nowhere could a complete one more easily be brought together, provided that it is countenanced by Government, as, in the agency at their command, there is a band of Officers who, for intelligence and efficiency, are not to be surpassed in any country, and who would gladly assist in bringing together the products of their districts. Were samples of these products all contained under one roof, not only would parties be able to compare the products of different districts with one another, but also they would be able to bring to light such as would be useful in the arts and fitted for the looms of the mother country. For locating such a collection the Seharunpoor Garden is admirably fitted, as from the Officer in charge it would always receive the attention that it deserves, and he would always have an opportunity of bringing to the notice of the public valuable materials. To the Home manufacturer, the Sunns, Patsuns-Sunnees, which every where abound, and which are so admirably fitted for the British looms, particularly those of Dundee, Bre-

chin, &c., at present are unknown. To the British manufacturer our Boehmeria Bunhinie, Daphne, Gtreculia, Marsdenia, Aloe, fibres are also unknown. The same was the case with Bengal Jute a few years ago, but which now forms a trade of tens of thousands of tons, giving employment to thousands of individuals. To bring together such a collection, a proper building for its accommodation alone is wanting, and every Officer would willingly and readily collect the products of his district when made cognizant of the object Government had in view. To erect such a building there is an excellent vacant space in the garden available for the purpose. All, therefore, that are wanting are Funds.

11. For such a collection a pukka building with flat roof would be necessary, and one might be erected at an expense of from Rs. 4,000 to 5,000. This small sum would soon be returned to the country a hundred-fold by the publicity that it would give to its raw products. I would, therefore, respectfully solicit the countenance of the Honorable the Lieutenant-Governor to such an undertaking.

12. But it might be urged that the natives would treat such a collection with indifference. Twenty years ago such remarks were made regarding the working classes in Britain, and such collections were unknown. Now every second-rate town has its economic Museum, and the great collection in the Botanical Gardens at Kew, distant some seven miles from London, is the *facile princeps* of museums of industry, and daily frequented by thousands in search of information and recreation.

13. Let such collections be formed in this country, and they would tend to interest the mind of the native in its product, and give those anxious and willing to turn the raw products to good account an opportunity of examining them. Ignorant and apathetic natives are, but still they are ever open, at least the better informed classes, to the

advancement of their own interests. By forming an Industrial Museum, Government would give an opportunity to parties to point out the products that would meet with a ready sale in the Home markets, and would stir up a spirit of enquiry at present latent, and which only requires ocular demonstration and example to be developed.

14. As connected with these Gardens, I may briefly mention the Government Tea Plantations which have formed the subject of another communication. From them there have been distributed to Tea Companies and private planters, during the season, the immense quantity of 89 tons of Seeds, and two millions three hundred thousand seedling tea plants, thus scattering this important plant broad-cast over the Kohistan of the North-West Provinces and Punjab.

15. For the Medical Department of the Public Service large supplies of Extract, and dried leaves, of *Hyoscyamus* have been prepared, viz., lbs. 244-13 of the former, and lbs. 64 of the latter. The following Medical substances have also been forwarded to the Chief Medical Store-keeper and Medical Depôt-keepers, in compliance with requisitions from the Secretary to the Chief Inspector General of Hospitals.

Tubers of Atees (*Aconitum heterophyllum*,) lbs. 460

The powder of Kaimaillee, (*Rottlera tinctoria*,) lbs. 420

Roots of the Berberry berberies, lbs. 130

16. CONSERVATORY.—The glass sanctioned by the Hon'ble the Lieutenant-Governor for the roof of the Conservatory was procured by me in London, and is daily expected at Seharunpoor. When it arrives, the building will as soon as possible be repaired.

17. To the Gardens many acquisitions have been made for which I am indebted to Dr. Anderson, Officiating Superintendent, Botanical Gardens, Calcutta; Dr. Forbes Watson, Inspector of Indian Vegetable Products, London; Dr. Cleghorn, Superintendent of Forests, Madras; and

Captain Pearson, Superintendent of Forests, Central India.

18. In conclusion, I beg to state that the head Gardener, Mr. W. Bell, selected by Professor Balfour, of Edinburgh, for the Scharunpoor Gardens has joined, and through his aid I trust to add to their efficiency and usefulness.

I have, &c.,

W. JAMESON, SURGEON MAJOR,

Superintendent, Botanical Gardens,

North-Western Provinces:

From Secretary to Government, North-Western Provinces, to the Superintendent, Botanical Gardens, North-Western Provinces, Scharunpoor, (No. 1672 A.)—Dated Nynce Tal, the 20th June, 1862.

SIR,—I am directed to acknowledge the receipt of your letter No. 318, dated 26th May, being a report on the working of the Botanical Gardens at Scharunpoor, during the year 1861, and to communicate the following remarks in reply:—

2. It is satisfactorily shewn that the Garden continues to fulfil one of its principal purposes with efficiency, in the extensive distribution of Fruit trees, Timber trees, and Seeds of all kinds, not only throughout the North-Western Provinces, but throughout India, and even in European countries.

3. The duties of the Department have been conducted with much zeal and energy, and the acknowledgments of the Government are due to your *locum tenens*, Dr. J. L. Stewart, as well as to yourself, for bearing in mind the interests of the Garden, even during your temporary absence from India.

4. The reciprocity exhibited by those who have been furnished with Plants and Seeds from the Garden is gratifying.

5. It appears very probable that the produce of the Carob tree, and the particular species of Clover grown in Malta, if they should be successfully raised in India, may become exceedingly valuable as fodder for cattle, and every endeavour should be made to acclimatize and propagate both. Perhaps the Officers attached to the Stud at Seharunpoor may be induced to co-operate with you in your experiments.

6. The Lieutenant-Governor congratulates you on the success which has attended the importation, by the Overland route, of Russian Flax-seed, and on the excellent crop which it has produced. The Government will readily aid you in your further operations, and will be prepared, at the fitting time, to sanction the distribution of prizes for the best specimens of Flax-straw produced by Native cultivators.

7. The Lieutenant-Governor fully appreciates the importance of bringing prominently to notice the many valuable fibrous plants that are indigenous to India ; and he believes that there is no measure better calculated to accomplish this end than the establishment of an economic Museum, in which the raw materials belonging to the vegetable kingdom should be collected, and be laid open to the inspection of all comers. There can be no doubt that the several Officers of the Government will readily aid in procuring and sending to the Museum specimens of the various articles which you have enumerated, and the collection will be very valuable in view of the publicity which would thereby be given to the existence of many raw products now unknown beyond the site of their growth.

8. The Seharunpoor Garden will afford the most suitable locality for such a Museum, and the Lieutenant-Governor will be glad to consider the means of providing a suitable building, which is of course indispensable. With this view an Extract, (paragraphs 10-13), from your Report and (paragraphs 7 and 8) from this reply, will be sent to the Department Public Works.

9. The progress of the Government Tea Plantations, and the large aid given by them in the propagation of the Tea Plant by the distribution of Seed and Seedlings, have been noticed in my reply to your separate report on the subject.

10. Copies of your interesting Report and its enclosure and of this reply, will be forwarded to the Government of India, with a request that they may be published in a supplement to the *Calcutta Gazette*, for general information.

I have, &c.,

G. COUPER,

Secy. to Govt., N. W. P.

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## No. 2.

REPORT ON THE WORKING OF THE GOVERNMENT  
BOTANICAL GARDENS AT SEHARUNPOOR, FROM  
JANUARY 1862 TO APRIL 1863.BY DR. W. JAMESON, *Superintendent*.

In submitting, for the information of His Honor the Lieutenant-Governor, detailed lists shewing the distribution of plants and seeds from, and the presentation to, the Botanical Gardens, North-West Provinces, during the last season, or from January 1862 to April 1863, I beg briefly to shew the manner in which the duties have, during that period, been conducted.

2. From the appended list (Appendix A,) it will be perceived that the large number of 1,57,068 Fruit trees, 38,935 Timber and Flowering shrubs, &c., 1,750 packages of seeds have been distributed to different Institutions, and to parties public and private.

3. From Calcutta to Peshawur most of the public Horticultural Institutions have received supplies of seeds: as the public Gardens of Calcutta, Neilgherries, Dehra Dhoon, Jullunder, Umritsur, Rawul Pindee, &c. To the rising Institutions, the Agri-horticultural Societies of Lucknow, Nagpore, and Lahore, large supplies of Fruit, Timber, Flower, Shrub, Vegetable, &c., seeds have been forwarded.

4. To numerous Civil Officers in charge of Districts; to the Medical Officers in charge of Jails; to Commissariat Officers in charge of Gardens worked for public purposes; to Canal Officers; to Railway Officers; to the great Government Gardens of Kew, Edinburgh and Dublin, fine collections have been transmitted.

5. To Soldiers' Gardens from Benares to Peshawur large collections of hot-weather and rain seeds and cold-weather seeds have been furnished. To prevent mistakes being made in sowing, particularly by parties belonging to Regiments that have recently entered India, and at the

same time ensure the distribution of new and fresh seeds, I have deemed it necessary to send out the hot-weather seeds in February, March, and the seeds intended for sowing in the cold season in May, June, or when the new seeds of the season have been gathered.

6. To several parties on the Continent, as Monsieur Valmorin of Paris, Van Haette of Ghent, Belgium, &c., fine collections of seeds have been forwarded, and by them seeds of useful and ornamental kinds will be reciprocated. From the former a very fine collection has already been received.

7. To the Reporter on Indian Vegetable Products, Dr. Forbes Watson, Whitehall, London, large collections of Pine and other valuable seeds have been transmitted, to enable him to effect exchanges with other Institutions both public and private.

8. It is a well-known fact that many vegetable seeds grown in India degenerate, and thus require to be renewed from time to time. This is particularly the case with the Brassicaceæ or Cabbage tribe, which are liable to spurt, and if not carefully cultivated will revert to their original type, and which is more liable to occur in small gardens where the different varieties are mixed up with each other. To keep up, therefore, a supply of good kinds of seeds, and enable the Gardens to distribute acclimated seeds of first-rate quality of the first and second year's growth, it is absolutely necessary to renew the stock. To enable me to do so, Her Majesty's Secretary of State for India, in compliance with the requisition of the Right Honorable the Governor General in Council, has this season, through Doctor Forbes Watson, sent seven small boxes of seeds, a supply ample to meet the wants of the Department. These seeds, as soon as they have been propagated in the Gardens, in the Hills and Plains will be distributed to applicants, and from them vegetables will be obtained nearly equal, if not equal to those obtained from imported seeds. Acclimated

seeds always germinate. Imported seeds, on the other hand, at times do not germinate in larger proportions than 10 or 20 per cent. For Soldiers' Gardens, therefore, they are not adapted. Acclimated seeds, on the other hand, always germinate, and if of the first and second year's growth, their produce is admirably fitted for the table.

9. For Soldiers' Gardens, men who look for a reward for their toil and labour, acclimated seeds ought alone to be distributed, as it is to a degree disheartening to receive no reward in the form of vegetables when much time has been spent by them in their gardens. That they were amply supplied last season will be seen by the list, which shews a distribution of 676 parcels to them.

10. Nor have other valuable and important plants in an economical point of view been neglected.

11. Of Hop Seeds two large boxes; Yams *Dioscorea*, one box; sweet Chesnuts and *Issomea Batatas*, one box; Kidney Potatoes, one box; grafted Fruit trees, four boxes, have been received from Dr. Forbes Watson. The most of these interesting collections have reached the Gardens in admirable order.

12. The Kidney Potatoes, packed in a plain deal box, arrived at Seharunpoor on the 13th March in as good order and as fresh as the day on which they were packed in London—a highly interesting fact, as it shews that the stock now met with in the Hills, which in many localities has become watery and waxy, and therefore much requires renewal, can be replaced by English seeds at a very small expense.

13. The Yams *Dioscorea*, sweet Potatoes, and Horse-Radish roots, *Cochlearea*, were all in excellent order, some being packed in dry moss and others in charcoal (the former proving to be much the better packing) in a half-inch deal case.

14. The Fruit tree grafts, entirely free of earth, were merely packed in dry moss, and the boxes were plain

deal cases 1½ foot long, 10 inches wide, by 6 inches deep. On opening them they presented a very extraordinary and interesting appearance, many of the plants having made shoots two and three inches in length. Blanched the shoots no doubt were, but in a few days exposed to light they recovered their colour. Ten days after their arrival upwards of 180 plants had broken and thrown out fine healthy shoots. The plan adopted by us to make them strike was as follows:—All the plants were transplanted into flower-pots, a third filled with broken bricks, &c., to ensure a dry bottom. The pots were then filled with a compost consisting of one part of sand, one part of vegetable and leaf mould, and one part of loam. Round the stems of the plants moss was bound, and with a fine syringe they were watered three times daily, and thus the bark kept moist. By this treatment 180 of the 400 plants had struck ten days after their arrival. All have been forwarded to the Nurseries at Mussoorie and Chejowree in West Gurhwal. By this simple method parties anxious to import fine Fruit trees from England on their own account can do so at a cheap rate and with little trouble. Nor was any particular care taken to ensure the safety of the grafts *en route* from England, the boxes being mixed up with other baggage in the hold of the Steamer. The sweet Chesnuts arrived in bad order, caused by the seeds heating *en route*. Had they been packed in moss or dry sand, they would no doubt have reached in good order. For the above valuable acquisitions Government is indebted to Her Majesty's Secretary of State for India and to Dr. Forbes Watson, by whom they were so judiciously packed.

15. Of Cereals, a sample of a fine kind of Barley and a sample of Pedegree Wheat have, (from the India Office) been received, but too late for sowing. They will, therefore, be reserved for sowing in the ensuing Rubbee season.

16. *Hops*.—Of these there are now about an acre under cultivation at Kowlaghir in the Dehra Dhoon, and the Hops obtained from them last season were of very fine quality. To many parties large supplies have been distributed.

17. Of Flowering Shrubs and useful Timber trees opportunity was taken to introduce from the Royal Gardens, Calcutta, a number of species desiderated by two gardeners sent to Calcutta to receive the *Cinchona* plants. By them Dr. Anderson, Officiating Superintendent Botanical Gardens, sent two wardian cases filled with a number of valuable plants, which have proved great acquisitions to the noble collection already contained in the Seharunpoor Gardens. See Appendices C and D.

18. *Cinchona Plants*.—On the requisition of the Hon'ble the Lieutenant-Governor, a collection of *Cinchona* plants, contained in four (4) wardian cases, were, by the Madras Government, sent from the Neilgherries. These plants had been raised from cuttings by Mr. M'Iver and many of them were then small and of little strength. On reaching the Seharunpoor Gardens the following was their condition, thus :—

|                                                                          | Dead. | Sickly. | Healthy. |
|--------------------------------------------------------------------------|-------|---------|----------|
| No. 1 Case.— <i>Cinchona Condaminea</i> , or<br>Rusty Brown Bark, ... .. | 2     | 7       | 21       |
| No. 2 Case.— <i>Cinchona Succoriebra</i> ,<br>Red Bark, ... ..           | 2     | 3       | 19       |
| No. 3.— <i>Condaminea</i> , Rusty Brown Bark, ...                        | 5     | 4       | 21       |
| No. 4.— <i>Meerantha</i> or <i>C. Nitida</i> , ...                       | 0     | 0       | 6        |
| <i>C. Peruviana</i> , finest Grey Bark, ... }                            | 1     | 8       | 9        |
| Total, ...                                                               | 10    | 22      | 76=108   |

On the 11th April they were forwarded to Western Gurhwal, and on the 17th they were removed from the cases, transplanted into flower-pots, and placed in tem-

porary Hot-beds at Chejowree and Mussoorie, and were then found to be in the following state:—

|                                                | Dead. | Healthy. | Total. |
|------------------------------------------------|-------|----------|--------|
| No. 1.— <i>Cinchona Condaminea</i> , ... ..    | 5     | 25       | 30     |
| No. 2.— <i>Cinchona Succoriebra</i> , ... ..   | 5     | 19       | 24     |
| No. 3.— <i>C. Condaminea</i> , ... ..          | 7     | 23       | 30     |
| No. 4.— <i>C. Peruviana</i> , ... ..           | 3     | 15       | 24     |
| <i>C. Nitida</i> and <i>Meerantha</i> , ... .. | 0     | 6        |        |
| Total, ... ..                                  | 20    | 88       | 108    |

Many of the plants are strong and healthy, and growing vigorously. Three cases were transplanted at Chejowree in Western Gurhwal, and one case, *C. Condaminea*, in the Government Garden, Mussoorie, preparatory to being afterwards forwarded to Dhunowtie when proper arrangements in the form of Hot-beds have been made for their reception. These valuable and important plants have now been fairly established in Western Gurhwal, and will, I trust, soon be met with throughout the Kohistan of the Western Himalayas as common as the Tea plant, as there are numerous localities in Western and Eastern Gurhwal and in Kumaon well adapted for its growth.

Since their removal to the mountains, many of the plants have thrown out strong shoots, from which cuttings will soon be able to be taken. To propagate them rapidly and extensively no attention on our part will be wanting, and we trust ere long to see *Cinchona*, like Tea, becoming one of the staple articles of exportation from the Kohistan of the North-West Provinces and Punjab.

19. Of valuable trees, in an economical point of view, which have been extensively propagated and distributed, we may mention a few here,

*Morus Multicaulis* and *Morus Sinensis* to parties anxious to try the rearing of silk-worms, as the Agri-horticultural Society of Oude, Mr. Cope of Umritsur, the Kangra Tea Company at Holta, and several other parties in the Dehra Dhoon, large numbers of cuttings of *Morus Multicaulis* and *Morus Sinensis*, a fine grafted variety received from China, have been given.

20. *Stillengia Sebifera*:—*Tallow Tree of China*.—This highly useful and important tree has been extensively distributed during the season, many maunds of seeds having been distributed to Officers in the North-Western Provinces and Punjab. From its seeds a useful Tallow and Oil are pressed, and from its leaves a dye prepared; its timber, too, is white, and close-grained, and hard, and thus fitted for printing-blocks. In China in some districts it is cultivated on a scale so large as to enable the cultivators to pay their revenue from the produce. In the North-West Provinces, it is found to grow equally well at Seharunpoor, in the Dehra Dhoon, and in Kohistan, at altitudes of from 4,000 to 5,000 feet, as at Hawul Baugh and Ayar Toli in Kumaon, Paoree in Gurhwal, and Holta in the Kangra valley. In all these localities it yields fruit in quantity.

21. *Sweet or Spanish Chesnuts (Castanea Vesca)*.—This valuable nut, which in the Central and Southern Departments of France forms the food of a considerable portion of the rural population, introduced some years ago into the Kohistan of the North-Western Provinces, is now fruiting freely in the Dehra Dhoon and in Kumaon at altitudes of from 4,000 to 5,000 feet, and will ere long prove a valuable acquisitive to the poorer classes. It was much to be regretted that the large case of nuts, sent by the Indian Home Government in March last, reached Seharunpoor in bad order, as the plants now growing throughout the Dhoons and Hills prove that its extensive introduction would be attended with most beneficial

results. I have, therefore, again solicited that another supply packed in moss or dry sand be forwarded.

22. *Carob Tree, Ceratonia Selaqua*.—The Carob or St. John's Bread-fruit-tree has been extensively propagated and distributed. But though it flourishes well, it has not yet yielded pods in such quantity, as it does in Malta, Italy, &c. This, however, may be owing to the trees being too young.

23. *Fruit trees*.—The fine supply of fruit-trees, grafts, &c., consisting of Apples, Pears, Plums, Apricots, Peaches, &c., received by the Overland route in March last, from Her Majesty's Secretary of State for India, will improve much the extensive and valuable collection of Fruit trees already existing in the Government Gardens, and thus enable me to distribute a greater number of varieties to applicants.

24. Of indigenous or acclimated Fruit trees, Mangoes, Lecchees, Wampees, Loquats, Goolab Jamun, large numbers have been distributed, and the demands for plants are greatly on the increase.

25. Of plants useful in the arts, Flax has received, more than any other, our attention during the last season. In the land assigned by Government for an experiment, a fine crop of Flax has this year been grown, some of it being from three to four feet in height. But to procure good long fibre, it is absolutely necessary that the land be strong or well-manured, and that irrigation be employed, and the seed sown from 15th September to 15th October. It, too, is necessary to use good acclimatized Russian seeds. From the crop grown, about twenty maunds of seeds will be available for distribution to zemindars and other private parties, and as soon as the fibre has been scutched, a sample will be forwarded to you for submission to the Hon'ble the Lieutenant-Governor. Of the plant, as procured from the farm, I beg to transmit a specimen for examination. With the Russian Flax seed a



quantity of Native Flax seed was also grown. But, as far as fibre was concerned, it was found to be a failure, as most of it was not more than  $1\frac{1}{2}$  feet in height. A quantity of the Flax seeds imported in 1861 and reserved for sowing, owing to its late arrival at Seharunpoor, failed to germinate, shewing that in India Flax seed will not keep in good condition for any length of time. In the Punjab the greater part of the Flax seeds imported by the Belfast Flax Company has again failed to germinate. The quantity, therefore, of good acclimated Russian Flax seed in India is still limited. I would, therefore, venture to suggest that a half of the acclimated Russian Flax seed now in store be reserved for applicants, and that the other half be again sown in the experimental farm in the ensuing season.

26. By Mr. D. Robertson, Officiating Collector of Seharunpoor, the cultivation of Flax has been taken up most warmly, and I doubt not but that he will be able to induce many zemindars who have good means at their disposal, such as canal irrigation, &c., to try it. For this purpose I solicit the sanction of Government to place at his disposal 15 or 20 maunds of acclimated Russian flax seeds for distribution to zemindars and that zemindars return in kind the value of the seeds allotted to them, on the same terms as the zemindars of Sealkote return to the Belfast Flax Company the value of the acclimated seeds received by them to cultivate, *viz.*, Rs. 5 per maund for acclimated seeds, which is returned in kind, or in the form of Flax straw at the rate of four maunds per rupee. To the zemindars who present the finest straw, small rewards ought by the Collectors to be assigned, and thus produce emulation amongst them.

27. *Cotton Seeds.*—The demand for fine varieties of American cotton seeds is now great, and in order to meet it, it is my intention, pending the sanction of the Hon'ble the Lieutenant-Governor, to bring under cultivation with

the finer kinds of cotton, such as New Orleans, Upland, Georgean, &c., twenty acres of the experimental Flax farm land. In the Gardens a small quantity has for years been cultivated, and acclimated New Orleans seed given to Mr. L. Berkeley, in charge of the Government Gardens at Delhi, and others, from which they have raised some cotton, which has been highly prized in the Home markets. But, as stated, the quantity at our disposal for distribution is limited, and quite unequal to meet the demands. The dearth, too, of cotton prevailing in the English markets must long remain so, and the demands on India be more heavy for years to come. That many parts of the North-West Provinces, particularly those districts that are watered by the canals, are admirably adapted for the finer kinds of American cotton has been proved by many parties. But all the attempts made to bring about the cultivation on an extensive scale have ended in failure, partly because there was no available local market from whence the cultivator could get a ready sale for his produce, as foreign or exotic cottons were not in much request with the native weaver, owing, as it is asserted, to its want of strength. But now it is different, and were Government to establish an experimental cotton farm for the cultivation of the finer kinds of exotic cottons, and for the distribution of good acclimated seeds on an extensive scale, it would, I am confident, be attended with the most beneficial results, the more so as there is not a Collector in the country who is not fully convinced of the urgency and necessity of taking advantage of the state of affairs in America to improve the condition of India. And as in the production of cotton a capital of from £40,000,000 to £50,000,000 is invested, a vast field for enterprise is presented and offered to the cultivators of India. But spirit and enterprise amongst the native community is at the lowest ebb, and if ever anything on an extensive scale be undertaken with exotic seed it must be initiated by Government. The present

opportunity ought not therefore to be neglected, and any measure tending to incite native cultivators to action ought to be adopted; and there is none in the hands of District Officers more advantageous than having the power of distributing to diligent native cultivators good acclimated seed. I say acclimated seed: as in Flax so in cotton; exotic cotton when newly imported is liable not to germinate. For the North-West Provinces one or more experimental farms of New Orleans cotton, &c., ought to be established, and to clean the cotton and remove the seeds a few Forbes' Gins ought to be available on the farm.

28. Nor are other fibre stuffs during the present crisis unworthy of more attention, particularly the fibres obtained from the Bohmarias or Hill stingless-nettles, and for the cleaning and preparing of which a machine has been invented and patented by Mr. G. Sandford of New York. The different kinds of Agarees are too well worthy of attention, and in the Jail of Dehra, the Director, Dr. Hutchinson, is now extensively employing the fibres of the American Agarees Americana and Acantala in making mats, for which they are admirably adapted.

29. From several Bohmarias strong fibre is obtained, which might be most usefully employed in the arts, and which abound in the Kohistan of the North-West Provinces at altitudes of from 4,000 to 5,000 feet. When we look to the vast trade that has sprung up within the last ten years in Bengal with Jute (*Corchorus Alitories*), which, before that time, was comparatively little known, and when we consider that we have in the Sunns and Patsuns of the North-West Provinces, and in the Allahs and Poes of the Kohistan, fibres much superior to it, that the Rail will within two years be close to the base of the Himalayas, and thus afford a cheap means of transport to the Seaboard,—the time, we may safely predict, is not far distant when these fibres will attract the attention they merit, and form an extensive export trade. Jute has risen from a

few hundred maunds to 52,000 tons. The looms in England are languishing for raw material. India has it to an unlimited extent, or can produce it, if capital and hands to direct are forthcoming, and by the Rail the means to transport the raw produce to distant ports will shortly present themselves. For India, therefore, particularly the North-West Provinces and Punjab, there is a bright future looming.

30. For the use of the Public Service large quantities of extract and dried leaves of Hyoseyamus have been prepared—viz., lbs. 240-8 of extract and lbs. 149-12 of dried leaves—and transmitted to the Chief Medical Store-keeper, Calcutta, and the Medical Store-keepers of Allahabad, Saugor, Umballah, and Sealkote. To the same parties for the use of the public service the large quantity of lbs. 1,122-8 of Atees Tubers (*Aconitum Heterophyllum*), collected at altitudes of from 12,000 to 13,000 feet in the Himalayas, has been transmitted. The valuable Anti-periodic, second only to Quinine itself in its action on the system, is daily coming more into notice, and taking the place of the much more expensive drug Quinine, and is thus now extensively employed in the treatment of intermittent and remittent fevers.

31. The Tea plant, the cultivation of which in the North-West Provinces and Punjab has become of national importance, will form the subject of another communication, and need not therefore be here noticed in detail.

32. *Conservatory*.—The roofing of the Conservatory with glass is rapidly progressing, and will soon be completed. The old roof was found to be entirely rotten. It was therefore necessary to renew it.

33. *Museum*.—Materials for commencing the building are now being collected, and in the ensuing month the work will be commenced on. As soon as the building is sufficiently advanced towards completion as to admit of

the reception of specimens, I shall take the liberty to lay before you, for the consideration of His Honor the Lieutenant-Governor, a plan by which specimens of the raw botanic materials of the North-West Provinces may be brought together.

34. From the above rapid sketch, I trust it has been shown that the Gardens have, during the last season, been worked with efficiency.

35. In conclusion, I beg to state that in carrying out the works in the Gardens I have been ably assisted by the Head Gardener, Mr. W. Bell, whose efficient services I beg to bring to notice.

36. To the following parties thanks are due for valuable donations of seeds and plants, &c., made by them to the Gardens :—

Her Majesty's Secretary of State for India, through Dr. Forbes Watson.

His Highness the Maharajah of Putialah.

Dr. Anderson, Officiating Superintendent Botanical Gardens, Calcutta.

Captain Pearson, Superintendent of Forests, Central India.

Dr. Cleghorn, Superintendent of Forests, Madras, on special duty, Punjab.

Major Cracroft, Deputy Commissioner of Rawul Pindee.

Major Mercer, Deputy Commissioner, Jullunder.

Government of Madras, and

J. Scott Elliot, Esquire, Calcutta.

I have, &c.,

W. JAMESON, SURGEON MAJOR,

*Superintendent Botanical Gardens,*

*North-Western Provinces.*





From Secretary to Government, North-Western Provinces,  
to Superintendent of the Botanical Gardens, N. W. P.,  
(No. 2331 A.)—Dated Nyné Tal, the 23rd June, 1863.

SIR,—I am directed to acknowledge the receipt of your letter No. 300, dated 4th ultimo, with its enclosures, being a report on the working of the Botanical Gardens at Seharunpoor during the year 1862.

2. In reply I am desired to state that this interesting report will be published in the "Selections" of this Government, and that a copy will also be forwarded to the Government of India for publication in a Supplement to the *Calcutta Gazette*.

3. The Hon'ble the Lieutenant-Governor sanctions the proposal, contained in paragraph 26 of your letter, to make over to the Collector of Seharunpoor 15 or 20 maunds of acclimated Russian Flax seeds for distribution among the zemindars, to be returned by them in kind, or in the form of Flax straw, on the terms given by the Belfast Flax Company at Sealkote, small rewards being given for the best straw.

4. The proposal to cultivate 20 acres of the experimental Flax farm land with some of the finer kinds of Cotton is also approved by His Honor. It is necessary in order that Government may be able to distribute good acclimated seed, of which there is a great want.

5. In conclusion, I am desired to convey to you the thanks of this Government for the care and attention bestowed by you on the Botanical Gardens during the past year.

I have, &c.,

R. SIMSON,

*Secretary to Government,*

*North-Western Provinces.*

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# MEDICAL STATISTICS.

No. 1.

## NOTE ON THE BRANCH DISPENSARIES RECENTLY OPENED IN THE BAREILLY DISTRICT.

BY

J. BALFOUR, ESQ., ASSISTANT SURGEON.—*Dated 28th  
December, 1847.*

PERHAPS one of the most striking features of the present history of India is the wonderful success which has attended the opening of dispensaries: the high and increasing favor in which they are held by the great majority of the people; and the confidence which has been placed in all Sub-Assistant Surgeons who have been actuated by a proper spirit in the performance of their interesting and arduous duties.

Great usefulness of  
Dispensaries.

Nowhere I believe has this been more striking than in the Bareilly district, and the extent of the usefulness of the central institution has been greatly enlarged by the establishment of subordinate branch dispensaries at Pillibheet, Buhera, and Besulpoor, of which I now propose submitting a short account.

2. I have reason to believe that branch dispensaries were first proposed by R. H. Clarke, Esq., the late Magistrate of this district, in a note on the Bareilly dispensary, which was written in the year 1842; and in order to show the feelings by which that gentleman was actuated, and which, having been kept in view by his successor, have led to results much greater than were anticipated, I make the following extract from it: "If permanent branch dispensaries in all the pergunnahs cannot be immediately established after the completion of the new dispensary, some at least might be; and supplies of medicine through the agency of the institution might also occasionally be sent out for distribution in other parts of the

First proposal to establish branches.

“country where sickness happened to be raging. We  
 “should thus create the first link of interest between Gov-  
 “ernment and the sick in the distant pergunnahs, and if  
 “we only reflect on the distress that must arise to a labor-  
 “ing man, from the occurrence of sickness, with a family  
 “dependent probably on his manual labor for maintenance,  
 “the great benefit of placing within his reach effectual  
 “medical and surgical relief cannot be too highly estima-  
 “ted. Numberless must have been the instances in which  
 “interruption to labor and industry has been shortened  
 “by the advice and relief given at the dispensary. We  
 “cannot therefore remain unmindful of their (the people’s)  
 “claims, nor can we forget the former ravages of epidemics,  
 “the fevers, smallpox, and other catalogue of diseases to  
 “which the people of this country have been so fearfully  
 “exposed; and thus, while it would be difficult indeed to  
 “find a more gratifying example of a daily dispensation of  
 “benefits than the Government dispensary at this station,  
 “it cannot surely be denied that it is a permanent duty of  
 “the Local Committee to use all their influence and exer-  
 “tions for widening the sphere of its usefulness and affilia-  
 “ting to it branch dispensaries in every Tuhsildarce divi-  
 “sion in the district (of which there will be eight in num-  
 “ber,) whenever the resources at command for accomplish-  
 “ing so desirable an object afford a prospect of success.”

3. The commencement of the experiment was made by  
 Mr. Clarke himself at Pillibheet,  
 First establishment at Pillibheet.

when the old Jail establishment  
 having been broken up, some mea-

sure for affording relief to the Police of the Terace, or  
 others, when laid up with the dangerous fevers of the  
 locality, appeared urgently called for; and he accordingly  
 at his own expense (afterwards I believe sanctioned by  
 Government) kept open a dispensary for such purposes.  
 The native doctor in charge was unfortunately a very  
 careless, perhaps worthless, fellow, and the patients report-

ed in attendance were few in number; but after the sanction of Government was obtained (at the end of 1843), a useful and respectable man was despatched to assume charge, and the attendance rapidly increased, and has gone on progressively even to the present time. A subscription was now raised, by the residents of Pillibheet, of Co.'s Rs. 3,934, and a good site selected, on which a most substantial pukka building has been erected for the dispensary, with good houses for the native doctor and all the subordinates.

4. The old Jail hospital allowance, which was all that was at first granted, having been  
Establishment at first insufficient. found insufficient to support the establishment on a proper footing;

leave was asked from Government to apply to this purpose a portion of the surplus funds of the Bareilly dispensary. A report was called for to explain how the surplus funds had accumulated, and to offer any recommendation as to their employment. This was drawn up by the Civil Assistant Surgeon, and showed that the surplus funds of the Bareilly dispensary amounted annually to Rs. 464-5-8, which, with an addition of Co.'s Rs. 400 from Government, would

suffice to place the Pillibheet branch  
Proposed arrangement at Buheree and Pillibheet. on a firm and useful footing, and to establish another at Buheree, a

locality where it was thought one was much wanted, being itself pretty healthy, yet within a short distance of the Terrace and many unhealthy thannas. This proposition was most liberally agreed to by Government, and operations were commenced at Buheree in January 1846;

at first in a common mud hut, run  
Carried out. up at a cost of 40 or 50 rupees, but a subscription having been made of Rs. 2,350 for the purpose, a very neat pukka building has been now for some time in use, and the necessary out-offices will, it is expected, be erected this season.

5. The last branch dispensary whose establishment I have occasion to notice, is that of Beesulpoor, and the circumstances connected with this, hold out large promise as to what may be effected in this and other districts. Mr. Browne, the *tehseldar*, being very often called on by natives to prescribe for their various ailments, took opportunity as occasion offered to point out to the more wealthy zemindars and others, the great advantages, conferred by the dispensaries at Pillibheet and Buheree and suggested that, by making arrangements to meet the expense, one might be established among themselves. This was taken in good part. At first a proposition was made for an annual subscription, but the known unwillingness of the natives to *continue* any thing of this sort being taken into consideration, it was suggested that a sum of money should be raised, sufficient, when placed at interest, to meet the annual expenditure. This was done, but meanwhile the affair being talked over at a meeting of the Bareilly Dispensary Committee, S. Fraser, Esq., then Officiating Judge, made the handsome offer of meeting the expense for the first six months, so as to enable us to start at once. This was accepted, Government sanction obtained, and the institution opened in the beginning of July 1847, in a portion of a house kindly lent for the purpose by its owner, and it has already proved of the greatest use to numbers both of the town and surrounding district.

6. Having given the above short account of the origin of our branch dispensaries, I propose showing the principles upon which the extent and rate of pay of the establishment were fixed, the result which was expected, and how far the expectation has been realised; and an account of the receipts and disbursements for a period of six months, which will give a correct idea of the average expenditure without the necessity of entering into a longer retrospect.

7.-- In determining the extent of the establishments of the branch dispensaries and the scale of wages, efficiency and economy. Data on which establishment and rate of pay were fixed. had both to be consulted. For efficiency, it was necessary that the native doctor who was to be placed in charge should be of good character, and acquirements above the average; and as these recommendations would always ensure him employment, and might lead to his removal should he desire this, it was thought necessary to fix his pay at the rate of Rs. 25 a month, than which he could not expect higher pay in any situation open to him. It was also considered, that, in the localities in which the branches were to be placed, sickness might lay up the officer in charge, or his absence might be unavoidable from various causes; it therefore became incumbent to provide for such occurrences. This, it appeared, could best be done by associating with him an assistant; a young man, partly at least acquainted with medicine, who could be trusted for a few days with the current duties, and whose extensive experience would, it was expected, ultimately qualify him for a higher appointment. It was found necessary to fix the salary of this office at 7 (seven) rupees monthly, and as they have proved extremely useful, this will be found very moderate. With regard to the other servants, it appeared necessary to employ a sweeper, khar (or bhistee,) and cook, in order that the building might be kept properly clean, and the wants of the indigent or helpless sick might be properly supplied. After due enquiry in the district, it was found that the wages of these servants might be fixed at Rs. 3-3 and 4, respectively, and this was accordingly done; while two rupees a month was set apart as dieting for poor in-door patients who had no means of feeding themselves. It was not supposed that this would be sufficient, but it was expected that private charity would meet any increased expenditure on this head.

|                              |    |                                                                                                                                                                    |
|------------------------------|----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Native doctor in charge, ... | 25 | The only other charge, that for native medicines, was averaged at Rs. 8, and this has been found to be quite sufficient. The total establishment then stood, as in |
| Assistant, ...               | 7  |                                                                                                                                                                    |
| Cook, ...                    | 4  |                                                                                                                                                                    |
| Blister, ...                 | 3  |                                                                                                                                                                    |
| Mohlar, ...                  | 3  |                                                                                                                                                                    |
| Native Medicines, ...        | 8  |                                                                                                                                                                    |
| Diet to poor patients, ...   | 2  |                                                                                                                                                                    |
| Total Monthly, Rs. 52        |    |                                                                                                                                                                    |

the margin, at 52 rupees a month.

8. The branch dispensaries would, it was conceived, bring fair medical aid within the reach of many who were at present utterly deprived of it; would be a means of saving life and preserving health to the police, and such of the inhabitants of the Terrace as choose to apply; would secure a fair union in the instance of broken bones, sword cuts and common injuries: and, with regard to the more serious surgical cases, might act as feeders to the central dispensary (for it was never contemplated that the great operations should be performed within:) and it was supposed that from thirty to fifty patients a day might be expected, on the average. The abstract of the proceedings of the three branches, as given

| Branch.     | Period.                              | Daily Average. | Total of new cases. |
|-------------|--------------------------------------|----------------|---------------------|
| Beesulpore. | 1st January, to 31st July, ... 1844, | 41-75          | 2511                |
|             | 1st Augt. 1844, to 31st Jan. 1845,   | 63-43          | 3331                |
|             | 1st Feb. 1845, to 31st July, 1845,   | 69-60          | 3565                |
|             | 1st Augt. 1845, to 31st Jan. 1846,   | 67-32          | 3816                |
|             | 1st Feb. 1846, to 31st July, 1846,   | 79-41          | 4125                |
|             | 1st Augt. 1846, to 31st Jan. 1847,   | 85-64          | 4103                |
|             | 1st Feb. 1847, to 31st March, 1847,  | 87-43          | 1673                |
|             | 1st April, 1847, to 30th Sep. 1847,  | 87-78          | 4851                |
|             | 1st Jan. 1846, to 31st July, 1846,   | 44-72          | 2936                |
| Buheree.    | 1st Augt. 1846, to 31st Jan. 1847,   | 50-83          | 1990                |
|             | 1st Feb. 1847, to 31st March, 1847,  | 53-10          | 697                 |
|             | 1st April, 1847, to 20th Sep. 1847,  | 35-81          | 1740                |
|             | For July, 1847, ... ..               | 46-20          | 448                 |
|             | For August, 1847, ... ..             | 56-65          | 454                 |
|             | For September, 1847, ... ..          | 51-63          | 495                 |
|             | For October, 1847, ... ..            | 48-00          | 374                 |
|             | For November 1847, ... ..            | 45-07          | 389                 |
|             |                                      |                |                     |

in the margin, will show how far our expectations have been exceeded, and to what a wonderful extent the people have availed themselves of the benefit offered them.

The grand classes of diseases which

apply, are ulcers, skin diseases, fevers, and rheumatism, in the order in which I have enumerated them. Ophthalmia and bowel complaints, though less frequent, yet from their importance deserve notice; and there are generally

Principal diseases, a good many syphilitic cases. But

any enlarging on this topic appears superfluous, the half-yearly reports as published, giving

Means of introducing full particulars. One point has gratified me much with regard to these

branches. They are proving a means of introducing vaccination among the people. Now, in previous years, I have sent vaccinators into the districts in which they are located, and have been *obliged to withdraw them*, in consequence of the excitement occasioned: women flying from village to village with their children, and others locking themselves up in their houses on the approach of the vaccinators. Last year a good many were vaccinated at Pillibheet, coming of their own accord, and I expect that this season much more will be done, not only there, but also at the other stations. Had this been the only result of the establishment of our branch dispensaries, I should have considered it no small triumph.

9. In considering the receipts and expenditure of these

Receipts and expenditure establishments, I have given the last reported half-year of the Pillibheet

and Buheree branches in the margin, and below, the

| Month.                     | Establishment. | Country Medicines. | Diets. | Total.  |
|----------------------------|----------------|--------------------|--------|---------|
| Pillibheet branch.         |                |                    |        |         |
| April, ...                 | 42 0 0         | 9 3 9              | 1 14 0 | 53 1 9  |
| May, ...                   | 42 0 0         | 7 9 0              | 1 12 6 | 51 5 6  |
| June, ...                  | 42 0 0         | 8 10 3             | 1 15 0 | 52 9 3  |
| July, ...                  | 42 0 0         | 8 3 3              | 2 0 0  | 52 2 3  |
| August, ...                | 42 0 0         | 8 0 6              | 2 0 0  | 52 3 3  |
| Sept., ...                 | 42 0 0         | 7 12 0             | 1 8 0  | 51 0 4  |
|                            | 252 0 0        | 49 6 9             | 11 1 6 |         |
| Grand Total in six months, |                |                    |        | 312 8 3 |

sources from which the income is derived.

It will be seen at once that the conjoined expenses of the two are somewhat under the sum at our dis-

| Month.                       | Establishment. | Country Medicines. | Diets. | Total.  |
|------------------------------|----------------|--------------------|--------|---------|
| Buheree branch. { April, ... | 42 0 0         | 7 4 3              | 1 6 0  | 50 10 6 |
| May, ...                     | 42 0 0         | 4 15 3             | 1 4 3  | 48 3 6  |
| June, ...                    | 42 0 0         | 5 7 6              | 1 15 0 | 49 6 6  |
| July, ...                    | 42 0 0         | 5 3 9              | 2 0 0  | 49 3 9  |
| August, ...                  | 42 0 0         | 6 1 0              | 2 0 0  | 50 1 0  |
| Sept., ...                   | 42 0 0         | 4 15 9             | 2 0 0  | 48 15 9 |
|                              | 252 0 0        | 33 15 6            | 10 9 3 |         |

Grand Total in six months, 296 8 6

as yet been five months in existence, I have

RECEIPTS

|                                                                                                     |         |
|-----------------------------------------------------------------------------------------------------|---------|
| Surplus funds of the Bareilly dispensary,                                                           | 464 5 8 |
| Sum formerly allowed for the Jail establishment, at Pillibheet, now applied to Dispensary purposes, | 384 0 0 |
| Additional granted by Government, ...                                                               | 400 0 0 |

Total per annum, 1,248 5 8

or half-yearly, 624 2 10

|                                                          |         |
|----------------------------------------------------------|---------|
| Expenses of Pillibheet branch } for six months as above, | 312 8 3 |
| Ditto Ditto, Buheree branch,                             | 296 8 9 |
|                                                          | 609 1 0 |

Surplus for Contingencies, ... 15 1 10

January 1848, we fall back on our own resources, which consist of Company's rupees 5,200,\* but on mortgage of landed property at 12 per cent. per annum, and yielding of course Rs. 624 yearly or Rs. 52 a month.

Beesulpoor Branch.

| Month.         | Establishment. | Country Medicine. | Diets. | Total.  |
|----------------|----------------|-------------------|--------|---------|
| July, ...      | 40 8 11        | 7 14 0            | 0 12 0 | 49 2 11 |
| August, ...    | 42 0 0         | 6 5 0             | 1 11 0 | 50 0 0  |
| September, ... | 42 0 0         | 9 10 3            | 0 15 0 | 52 9 3  |
| October, ...   | 42 0 0         | 7 3 6             | 1 2 0  | 50 5 6  |
| November, ...  | 42 0 0         | 9 0 0             | 1 0 0  | 52 0 0  |
|                | 208 8 11       | 40 0 9            | 5 8 0  |         |

Grand Total in five months, 254 1 8

\* N. B.—Rs. 5,705 have been subscribed, the balance, with what may be yet realized, will go towards erecting a building.

posal thereby leaving a small margin for contingencies. The expenses of the Beesulpoor Branch were calculated at the same rate. As it has only incurred since its opening; for the whole of which, as already mentioned, we have been indebted to the liberality of S. Fraser, Esquire. From 1st



10. In order to give an idea of the country medicine principally in use as well as their ordinary prices, I give below, the bill for country medicines supplied to the Pillibheet branch in September last, which may be taken as a fair average. I have only to remark that it has been found more difficult to obtain these supplies at Beesulpoor than at the other stations; but the demand being now fairly established, the supply is becoming better.

|                             | Maunds. | Seers. | Chittaks. | Tolas. | Rupees. | Annas. | Pies. |
|-----------------------------|---------|--------|-----------|--------|---------|--------|-------|
| Country Paper, 3 quires,... | 0       | 0      | 0         | 0      | 0       | 12     | 0     |
| Senna,...                   | 0       | 1      | 8         | 0      | 0       | 4      | 6     |
| Cheyretta, ...              | 0       | 1      | 8         | 0      | 0       | 4      | 6     |
| Rhubarb, ...                | 0       | 3      | 0         | 0      | 0       | 0      | 9     |
| Ginger, ...                 | 0       | 4      | 0         | 0      | 0       | 1      | 0     |
| Red Pepper, ...             | 0       | 1      | 0         | 0      | 0       | 0      | 6     |
| Castor Oil, ...             | 0       | 1      | 0         | 0      | 0       | 6      | 6     |
| Camphor, ...                | 0       | 0      | 1         | 0      | 0       | 2      | 6     |
| Aloes, ...                  | 0       | 0      | 2         | 2½     | 0       | 2      | 0     |
| Choorun, ...                | 0       | 0      | 8         | 0      | 0       | 3      | 0     |
| Kut Kulega, ...             | 0       | 0      | 5         | 0      | 0       | 1      | 6     |
| Black Pepper, ...           | 0       | 0      | 0         | 0      | 0       | 0      | 0     |
| Alum, ...                   | 0       | 0      | 4         | 0      | 0       | 1      | 6     |
| Country Phials, No. 12, ... | 0       | 0      | 0         | 0      | 0       | 1      | 0     |
| Wax, ...                    | 0       | 0      | 2         | 2½     | 0       | 3      | 6     |
| Itch Oil, ...               | 0       | 0      | 0         | 0      | 0       | 3      | 6     |
| Rosin, ...                  | 0       | 0      | 8         | 0      | 0       | 2      | 0     |
| Verosa, ...                 | 0       | 0      | 12        | 0      | 0       | 3      | 0     |
| Verdigris, ...              | 0       | 0      | 0         | 4½     | 0       | 2      | 0     |
| Sulphur, ...                | 0       | 1      | 0         | 0      | 0       | 3      | 3     |
| Vinegar, ...                | 0       | 0      | 4         | 0      | 0       | 0      | 0     |
| Pen and Ink, ...            | 0       | 0      | 0         | 0      | 0       | 0      | 9     |
| Cubebs, ...                 | 0       | 0      | 2         | 0      | 0       | 2      | 6     |
| Guzie 29 yards, ...         | 0       | 0      | 0         | 0      | 0       | 14     | 0     |
| Glue, ...                   | 0       | 1      | 8         | 0      | 0       | 12     | 0     |
| Oil, ...                    | 0       | 7      | 8         | 0      | 1       | 2      | 0     |
| Wood, ...                   | 2       | 0      | 0         | 0      | 0       | 5      | 0     |
| Leeches, No. 55, ...        | 0       | 0      | 0         | 0      | 0       | 13     | 9     |
| Diet to poor Patients, ...  |         |        |           |        | 7       | 12     | 0     |
| Total Co.'s Rupees,...      |         |        |           |        | 1       | 8      | 0     |
|                             |         |        |           |        | 9       | 4      | 0     |

11. I have now only to add that in superintending the progress of these institutions, my great endeavour, after obtaining the services of a good steady native doctor, was to give him all the weight and influence I could, guarding against fabri-

General remarks.

cation of reports and inattention to duty. With this view, I have made visits to each station regularly every month, often without notice (or the possibility of its being given) of my intention, and thus saw affairs in their every-day dress. I have also discouraged application for advice from the sick directly made to myself, requesting them to apply to the native doctor in the first instance, and consulting with him afterwards, if required by the severity of the case.

I am not aware of any other point of interest requiring notice in this note; but I may add that I believe I have been very fortunate in securing the services of respectable and well meaning men for the different situations, and that with such precaution and stated supervision, I conceive that a greatly extended field might be occupied with similar institutions, not in this district only, but also in other parts of India.

J. BALFOUR,

*Assistant Surgeon.*

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## N o. 2.

## NOTE ON THE DISPENSARIES IN THE NORTH-WESTERN PROVINCES FOR THE YEAR 1860.

BY THE OFFICIATING ASSISTANT SECRETARY.

1. On the 1st January 1860, ninety-two Dispensaries were in operation, including those in the recently transferred districts of the Saugor and Nerbudda Territories. Four new Dispensaries were established during the year, *viz.*, at Tuppul and Haupper, in the division of Meerut, at Futtehghurh, and at Hurda in Hooshungabad; an account of these will be found under the districts in which they are situated.

2. The accounts show that the Dispensaries, generally, at the close of 1860 were in a most prosperous state. The floating balances had increased by Rs. 10,855-15-7 during the year. The invested funds had increased from Rs. 54,516-8-0 in 1859, to Rs. 89,054-1-3 in 1860.

3. There is a slight increase in the sums collected by subscription, as will appear from the appended table.

|                 |     |     | 1859.              | 1860.              |
|-----------------|-----|-----|--------------------|--------------------|
| European,       | ... | ... | 6,842 2 8          | 10,507 11 2        |
| Native,         | ... | ... | 25,386 12 6        | 29,213 2 3         |
| Total,          | ... | ... | <u>32,228 15 2</u> | <u>39,720 13 5</u> |
| Total increase, | ... |     | 7,591-14-3         |                    |

4. The total sums received during the year from various sources, amounted to Rs. 1,58,708-1-2, *viz.* :—

|                           |     |     |                    |
|---------------------------|-----|-----|--------------------|
| Government Grants-in-aid, | ... | ... | 82,731 3 11        |
| Nuzzool and local funds,  | ... | ... | 26,199 9 11        |
| Interest of vested funds, | ... | ... | 10,056 5 11        |
| Subscriptions,            | ... | ... | <u>39,720 13 5</u> |
|                           |     |     | 1,58,708 1 2       |

Of this sum Rs. 1,24,020-10-4 were expended, leaving an available balance in the hands of the several Committees

of Rs. 34,687-5-10. The total number of patients treated was 3,98,272, being an increase of 75,553 over the number shown in the returns for the previous year. The greatest increase is shown in the Rohilcund returns. In that division the excess of patients treated during 1860, as compared with the number to whom relief was afforded in 1859, amounted to no less than 30,091. Of surgical operations both major and minor, 15,937 were performed, being an increase of 4,200 over the number shown in the returns for 1859; of these 15,728 were successful. Remarkable progress has been made in vaccine operations during the year under notice. This may be best shown in a tabular form.

|                        |        | 1859.         | 1860.         |
|------------------------|--------|---------------|---------------|
| Operations successful, | ... .. | 33,019        | 51,877        |
| Ditto unsuccessful,    | ... .. | 9,774         | 16,257        |
| Ditto doubtful,        | ... .. | 5,346         | 8,476         |
| Total,                 | ... .. | <u>48,139</u> | <u>76,620</u> |

Total increase in number of operations, 28,481.

These returns do not include the operations carried on by the Superintendent of Vaccination in Kumaon, Gurhwal, and Rohilcund, which find their place in a separate Annual Report submitted by the Superintendent.

5. The amounts credited under the head of subscriptions in some of the district returns, bear a very undue proportion to the Government grant. The reporting officers in such cases allude to the general backwardness of natives to subscribe, but they never give the causes of this backwardness, nor do they state the measures they have adopted to remove it. Yet the causes are not difficult to discover.

6. Partly no doubt it is attributable to a want of interest on the part of the district officers, who are besides too fully occupied with their ordinary duties to be able to devote much time to promoting the interests of Dispensaries; yet they could, by the exercise of a little tact, and

by their personal influence, in very many cases, persuade the landholder to subscribe a small annual sum. As a proof of what may be done in this way, it is only necessary to point to the returns of the Meerut division, where the native subscriptions have risen from Rs. 60 in 1859, to Rs. 5,444-14-9 in 1860; of which latter sum Rs. 4,413-2-9 was contributed by the Meerut district alone. Again, in Bareilly there was no subscription in 1859, while in 1860, Rs. 1,458-14-0 were collected.

7. Natives will not *offer* subscriptions, though they will often give readily and willingly when they are called to give. They spend annually considerable sums in charity, and if they were once made to understand the real charity of Dispensaries, they would without doubt take a warmer interest in their welfare.

8. A striking exemplification of this is found in the case of the charitable dowager Ranee of Vizianagram, a resident of Benares, who, from her income of Rs. 2,000 per mensem, supports at her sole charge the Bheelopoor Dispensary in that city, besides distributing alms with much judgment and liberality. In the Bareilly district two branch Dispensaries (the "Killah" and "Poorana Shahur") were maintained at the cost of two wealthy and charitable natives, while the Aonlah Dispensary has been endowed with land yielding an income sufficient for its support, by the Hukeem Mahomed Saadut Alee of Rampore.

9. Another cause of the often asserted backwardness of natives to subscribe, is due to their religious prejudices being alarmed or wounded. For instance, at Ajmere the dissection of a body by a zealous Native Doctor caused an instantaneous decrease, both in the number of patients applying for relief, and in the amount of subscriptions. The prejudice incited against the offender was so strong as to render his removal necessary.

10. The personal character of the Sub-Assistant Surgeon, or of the Native Doctor in charge, has also a pow-

erful influence on the well-doing of the institution. They require a most careful supervision on the part of the Civil Surgeon: for they are prone to consider the charge of a Dispensary as a mere stepping stone to a lucrative private practice, and will sometimes refuse medical aid in urgent cases of sickness, if they think the circumstances of the applicant admit of his giving a fee of however trifling an amount. The Sub-Assistant Surgeon of Ghazee-pore was removed during the year under report for conduct of this nature; but it is to be feared that his is by no means a solitary instance. Still with all these drawbacks, native subscriptions are increasing, and year by year the attendance at the Dispensaries becomes greater; and, if district officers will only interest themselves in the cause, there is no doubt that many of the Dispensaries may be placed, at no remote date, on a permanent self-supporting footing. In Budaon the Collector has persuaded very many of the zemindars to contribute a small percentage on the jumma of their villages. Their example has been followed in the Cawnpore district in 1861.

11. Looking to the work done in proportion to the Government grant, the Rohilkhund Division shows the best results. At a cost to Government of Rs. 16,382-8-2, 1,25,191 patients, or more than three-eighths of the total number treated in the North-Western Provinces, were relieved.

12. I now proceed to notice the several Dispensaries in detail.

## MEERUT DIVISION.

### DEHRA DOON.

13. *Accounts.*—At the end of the year there was a balance in hand of Rs. 209-0-4; the total expenditure amounted to Rs. 1,649-15-2; of which Rs. 1,469-0-8 was defrayed by Government. The allowance sanctioned by G. O. G. G. No. 766, dated 18th July 1854, was Rs. 200

per mensem. The Commissioner has rightly informed the Superintendent that the whole sum should have been drawn, and the surplus, Rs. 930-15-11, added to the floating balance.

14. *Subscriptions*.—The amount of subscriptions, European and Native, is but small, Rs. 154-8-0; but this is an advance on last year, when there were none. Owing to the peculiar character of the district, and the general poverty and migratory habits of the inhabitants, it is not surprising that it should have been found difficult to raise any considerable sum from the natives by voluntary subscription. As regards the European contributions, there should be no difficulty in raising subscriptions for charitable purposes at a large Sanatorium like Mussooree. A considerable sum was raised in 1861 at Nynce Tal, by the simple circulation of a subscription paper, and there is no reason to doubt that the same plan would meet with success at Mussooree.

15. *Patients*.—Relief was afforded to 1,996 patients, which is an increase of 120 over the number treated in 1859.

16. The Commissioner in his reports notices the almost entire disappearance of “guinea worm,” formerly so prevalent in the Doon. It is attributed (correctly) to the improved quality of the water gratuitously supplied from the Masonry Canal.

17. *Vaccine*.—The returns under this head shew 3,548 cases, or an increase of nearly one-third over the number in 1859. The vaccination was successful in 2,127 cases.

18. *Accounts*.—Of the Government allowance, Rs. 720 per annum, 195-6-11 only has been drawn. The attention of the Superintendent is directed to the Rule noticed in paragraph 27 of Mr. Monteath’s Note on the Dispensaries of the N. W. Provinces. The expenditure on subordinate establishments, bazaar medicines, &c., has been covered by the subscriptions, which amount to Rs. 376.

19. *Patients*.—Relief has been afforded to 1,345 patients. No apprentices are entertained at this Dispensary.

20. *Kalsee Branch: Accounts*.—The allowance sanctioned by Government is Rs. 20 per mensem as per margin. The cost of the Native Doctor in charge is debited to the Doon Civil Establishment; of this sum Rs. 190-8-11 only appears to have been drawn.

|                     |        |  |
|---------------------|--------|--|
| 1 Compounder, ...   | Rs. 8  |  |
| 1 Sweeper, ...      | " 4    |  |
| Bazaar Medicines, " | " 8    |  |
| Total               | Rs. 20 |  |

21. *Patients*.—785 patients were treated during the year, an increase of 86 over the number of cases in 1859.

#### SEHARUNPOOR.

22. *Accounts*.—The Government allowance, Rs. 200 per mensem, or 2,400 per annum, has been exceeded by Rs. 611-10-10. The Commissioner states that he has directed the Collector to adjust this amount by raising extra subscriptions. The charge must be held on the Inefficient Balance as an advance made to the Collector, until it shall have been repaid, either from subscriptions, or floating balance at the disposal of the Committee.

23. Rs. 175 were subscribed by Europeans, and Rs. 27 by Natives. It appears, however, from the proceedings of the Dispensary Committee, dated 15th January, 1861, that a great improvement is to be expected in the returns for 1861 under this head. It is trusted that these expectations may be realized.

24. *Patients*.—Relief was afforded to 6,797 patients, or 528 in excess of the number treated during 1859.

25. *Vaccine*.—The vaccine returns are not unsatisfactory, shewing a total of 4,966 cases, (being an increase of 1,958 over the number in 1859) of which 439 were successful.

26. *Apprentices*.—Two paid apprentices have been attached to the Institution since 1858.

27. His Honor observed, in the returns for the first half-year, that the management of the Dispensary was good, and the Institution itself evidently appreciated by the natives.



## MOOZUFFURNUGGUR.

28. *Accounts.*—This Dispensary was closed during 1859 owing to the bad conduct and intoxicated habits of the Sub-Assistant Surgeon. It was not re-opened until June 1860, Government having appointed a Native Doctor on Rs. 40 per mensem, on the understanding that the subscriptions should not fall below this amount.

29. The subscriptions have exceeded the promised amount, and aggregate Rs. 491, contributed entirely by natives.

30. *Patients.*—There were 1,938 patients, a not unsatisfactory return, considering, as the Commissioner remarks, the size of the town and the infancy of the institution. Of the operations, fourteen were capital; all are returned as successful.

31. *Vaccine.*—There were 548 cases of vaccination, of which 317 were successful.

32. *Apprentices.*—One apprentice is attached to this Dispensary.

## MEERUT.

33. *Accounts.*—Here again a smaller amount (Rs. 1,348-12-3) has been drawn than the Government allowance of Rs. 200 per mensem. The Commissioner has invited the attention of the Collector to this point. The large sum of Rs. 4,413-2-9 has been collected by subscription from the natives. Rs. 48 only appeared under this head in the returns for 1859. This sum has been chiefly devoted to the erection of ranges of out-houses for the private accommodation of patients who possess sufficient means to support themselves. A branch Dispensary in the city of Meerut has also been opened; it is supported entirely by local contributions, and is said to be working fairly. There was a balance in hand of Rs. 1,351-1-5.

34. *Patients.*—Relief was afforded to 22,597 patients, or 7,918 in excess of the number treated during 1859.

35. *Vaccine*.—Vaccine operations have also largely increased. The returns shew 14,285 cases, of which 11,114 were successful, against 1,123, of which 725 were successful in 1859. The Commissioner bestows a well-merited encomium on the energy of Mr. Sapte and Doctor Cutcliffe, and the hearty interest which, as is evident from these satisfactory returns, they both take in the welfare of the institution.

### BOOLUNDSHUHUR.

36. There was no Dispensary, during 1860, in this district.

### ALLYGURH.

37. *Accounts*.—The usual mistake has been committed of not drawing the full Government allowance, Rs. 1,706-7-4 only have been drawn, instead of Rs. 2,400 the sanctioned amount. Nothing has been received as subscription from the natives; who, however, on the institution of the Dispensary in 1851, shewed much liberality in erecting a commodious building and contributing Rs. 7,525 as an endowment.

38. In the cash account for the first half of the year under report it was noticed that a portion of the available balance had been invested in a loan of Rs. 5,000 to Gunga Dhur and Kishen Lall, zemindars of Atrowli, at 10 per cent. per annum on mortgage of  $17\frac{1}{2}$  biswahs of mouzah Ghazcepore, pergunnah Akberabad and Chanduck, pergunnah Atrowli.

39. The Lieutenant-Governor observed on this that the funds belonging to Dispensaries were of the nature of "trust funds," which it is unusual to invest in other than Government Securities.

40. *Patients*.—11,120 patients were relieved, or 278 in excess of the number treated in 1859.

41. *Vaccination*.—There is an increase of 991 in the number of cases of vaccination, which aggregated 5,500

of which 4,119 were successful. There were 33 major operations, of which 3 only were unsuccessful. Doctor Kilkelly has apparently maintained the reputation which the Dispensary acquired under the management of Doctor S. Clark, his predecessor.

42. *Hattrass and Secundra Rao Branches.*—These Branches are supported by the interest of vested funds. The attendance returns are, on the whole, satisfactory. They shew an increase of 303 patients over the number treated in 1859.

43. *Vaccination.*—372 cases of vaccination are entered. This is the first time that Vaccine returns have appeared since the institution of these Branches.

44. *New Dispensaries in the Division Haupper.*—Mr. Sapte, the Magistrate of Meerut, proposed to establish a branch Dispensary at Haupper at a cost of Rs. 2,626-8-9, from the sum of Rs. 8,535-8-2 collected by the sale of destroyed arms surrendered in the course of the Disarming operations. A site was bestowed by a liberal native, Muddun Gopal, and a subscription of Rs. 50 per mensem guaranteed by certain zemindars of pergunnahs Haupper and Ghazeeabad. This proposal was sanctioned in G. O. No. 1206 A, dated 10th November, 1860.

45. *Tuppul.*—By the G. O. above quoted, sanction was also accorded to a proposal of the Magistrate of Allygurh to devote one-fourth (namely, Rs. 1,732) of the sum realized by the sale of destroyed arms in this district, to the establishment of a branch Dispensary at Tuppul, which was greatly needed in consequence of the extreme unhealthiness of that portion of the district. Mr. Prinsep engaged to raise by subscription the funds necessary for its maintenance.

#### ROHILKHUND DIVISION.

46. At the close of the year all the former Dispensaries and their branches had been re-opened, and had commenced operations.

47. The number of branches is shown in the margin

| DISTRICTS.     | Sudder Station. | No. of Branches. | Total. |
|----------------|-----------------|------------------|--------|
| Bijnour, ...   | 1               | 2                | 3      |
| Moradabad, ... | 1               | 1                | 2      |
| Budaon, ...    | 1               | 5                | 6      |
| Bareilly, ...  | 3               | 4                | 7      |
| Shajehanpore,  | 1               | 2                | 3      |
| Total,         | 7               | 14               | 21     |

under "Bareilly Sudder Station." The general return exhibits the Parent Dispensary and the City Branch-

es as one institution. There are 14 Branches in the interior of the several districts of the Division.

48. The abstract below shows the total number of patients treated at these institutions, to be 1,26,340 in 1860, exceeding that of the preceding year by 30,650.

This excess is attributable to the head Stations and Branches being in full working order, and not to the insalubrity of the season, for the year 1860 is well known to have been remarkably healthy.

| DISTRICTS.          |   | Year. | In-door Patients. | Out-door Patients. | Total, inclusive of number remaining at close of past year. | Remaining. |
|---------------------|---|-------|-------------------|--------------------|-------------------------------------------------------------|------------|
| Bijnour, ...        | { | 1859  | 111               | 4,447              | 4,604                                                       | 26         |
|                     |   | 1860  | 366               | 7,990              | 8,882                                                       | 67         |
| Excess in 1860, ... |   |       | 255               | 3,543              | 4,278                                                       | 41         |
| Moradabad, ...      | { | 1859  | 218               | 5,464              | 5,682                                                       | 108        |
|                     |   | 1860  | 345               | 10,949             | 10,949                                                      | 122        |
| Excess in 1860, ... |   |       | 127               | 5,485              | 5,267                                                       | 14         |
| Budaon, ...         | { | 1859  | 377               | 25,244             | 25,621                                                      | 197        |
|                     |   | 1860  | 564               | 29,563             | 30,127                                                      | 252        |
| Excess in 1860, ... |   |       | 187               | 4,319              | 4,506                                                       | 55         |
| Bareilly, ...       | { | 1859  | 343               | 45,645             | 46,421                                                      | 524        |
|                     |   | 1860  | 508               | 57,243             | 58,275                                                      | 720        |
| Excess in 1860, ... |   |       | 165               | 11,598             | 11,854                                                      | 196        |
| Shajehanpore, ...   | { | 1859  | 402               | 12,849             | 13,362                                                      | 99         |
|                     |   | 1860  | 438               | 17,225             | 17,762                                                      | 93         |
| Excess in 1860, ... |   |       | 36                | 4,376              | 4,400                                                       | 0          |
| Total, ...          | { | 1859  | 1,451             | 93,649             | 95,690                                                      | 954        |
|                     |   | 1860  | 2,221             | 1,22,970           | 1,26,340                                                    | 1,254      |
| Excess in 1860, ... |   |       | 770               | 29,321             | 30,305                                                      | 294        |

49. The abstract of the result of the treatment shows that of 1,26,143 patients 1,06,980 have been cured; that 251 have died, and 125 were still under treatment, and 17,655 were relieved or had ceased to attend.

| DISTRICTS.                                          | Total No. of Patients. | Cure.    | Relieved; ceased to attend; incurable.              | Died. | Remaining. |
|-----------------------------------------------------|------------------------|----------|-----------------------------------------------------|-------|------------|
| Bijnour, ... { 1st six months,<br>{ 2nd "       "   | 4,230                  | 3,911    | 244                                                 | 8     | 67         |
|                                                     | 4,152                  | 3,884    | 262                                                 | 6     | 67         |
|                                                     | 8,382                  | 7,795    | 506                                                 | 14    | 67         |
| Moradabad, ... { 1st six months,<br>{ 2nd "       " | 5,021                  | 3,645    | 1,181                                               | 14    | 181        |
|                                                     | 6,581                  | 4,974    | 1,445                                               | 21    | 122        |
|                                                     | 11,402                 | 8,619    | 2,626                                               | 35    | 122        |
| Budaon, ... { 1st six months,<br>{ 2nd "       "    | 13,586                 | 11,336   | 1,981                                               | 11    | 238        |
|                                                     | 16,736                 | 14,019   | 2,686                                               | 34    | 255        |
|                                                     | 30,322                 | 25,355   | 4,667                                               | 45    | 255        |
| Barcilly, ... { 1st six months,<br>{ 2nd "       "  | 23,339                 | 22,505   | 4,169                                               | 66    | 599        |
|                                                     | 34,936                 | 25,677   | 5,076                                               | 62    | 720        |
|                                                     | 58,275                 | 48,182   | 9,245                                               | 128   | 720        |
| Shajchanpore, { 1st six months,<br>{ 2nd "       "  | 9,617                  | 9,219    | 288                                                 | 17    | 99         |
|                                                     | 8,145                  | 7,810    | 323                                                 | 18    | 93         |
|                                                     | 17,762                 | 17,029   | 611                                                 | 29    | 93         |
| Total, ... { 1st six months,<br>{ 2nd "       "     | 59,793                 | 50,616   | 7,863                                               | 110   | 1,204      |
|                                                     | 66,350                 | 56,364   | 9,792                                               | 141   | 1,257      |
| Grand Total for 1860, ...                           | 1,26,143               | 1,06,980 | 17,655<br>relieved; ceased<br>to attend; incurable. | 251   | 1,257      |

50. This view of the Surgical operations is not quite satisfactory, the classification not being on an uniform principle.

| DISTRICTS.        | SURGICAL OPERATIONS DURING 1860. |               |        | LAST HALF-YEAR OF 1860.   |                    |                  |
|-------------------|----------------------------------|---------------|--------|---------------------------|--------------------|------------------|
|                   | Successful.                      | Unsuccessful. | Total. | Lithotomy.                | Capital operation. | Minor operation. |
| Bijnour, ...      | 659                              | 76            | 735    | 10<br>For the whole year. | 15                 | 221              |
| Moradabad, ...    | 43                               | 5             | 48     | 21                        | 2                  | 1,323            |
| Budaon, ...       | 9                                | 4             | 13     | 6                         | 4                  | 512              |
| Bareilly, ...     | 113                              | 7             | 120    | 42                        | 30                 | 769              |
| Shajehanpore, ... | 26                               | 5             | 31     | 15                        | 5                  | 344              |
| Total, ...        | 850                              | 97            | 947    | 94                        | 56                 | 3,169            |

51. The Vaccine operations are larger than those of the preceding year, and so far there is an improvement.

| DISTRICTS.        | VACCINE OPERATIONS, 1860. |               |           |        | 1859.<br>Successful,<br>... | 10,714<br>Total,<br>... |
|-------------------|---------------------------|---------------|-----------|--------|-----------------------------|-------------------------|
|                   | Successful.               | Unsuccessful. | Doubtful. | Total. |                             |                         |
| Bijnour, ...      | 2,051                     | 1,060         | 927       | 4,038  | 1859.<br>Successful,<br>... | 10,714<br>Total,<br>... |
| Moradabad, ...    | 2,200                     | 515           | 303       | 3,018  |                             |                         |
| Budaon, ...       | 1,675                     | 615           | 538       | 2,858  |                             |                         |
| Bareilly, ...     | 9,187                     | 3,292         | 1,181     | 13,660 |                             |                         |
| Shajehanpore, ... | 2,032                     | 513           | 520       | 3,065  |                             |                         |
| Total, ...        | 17,145                    | 6,055         | 3,469     | 26,669 |                             |                         |

52. The working expenses for the last year are also shewn to amount in the aggregate to Rs. 29,266. I have excluded the surplus remaining in hand, and the sums invested, being either refunds or loans called in.

| DISTRICTS.        | Establishments. | Country Medicines. | Dieting Patients. | Miscellaneous. | Total. |
|-------------------|-----------------|--------------------|-------------------|----------------|--------|
| Bijnour, ...      | 4,124           | 255                | 201               | 745            | 5,325  |
| Moradabad, ...    | 3,759           | 177                | 134               | 36             | 4,106  |
| Budaon, ...       | 3,136           | 440                | 224               | 4,388          | 8,188  |
| Bareilly, ...     | 5,015           | 733                | 0                 | 2,209          | 7,957  |
| Shajehanpore, ... | 2,446           | 147                | 100               | 994            | 3,690  |
| Total, ...        | 18,480          | 1,752              | 662               | 8,372          | 29,266 |

53. The sources of income are shewn below. It will be seen how very largely the Government contributes the support of the ordinary expenses of these Institutions; at least three-fifths are contributed by the Government. The items entered under "Nuzool," against Budaon and

| DISTRICTS.        | Floating. | Government Donation. | Nuzool and other sources. | Interest on invested Funds. | SUBSCRIPTIONS. |         |        | Grand Total. |
|-------------------|-----------|----------------------|---------------------------|-----------------------------|----------------|---------|--------|--------------|
|                   |           |                      |                           |                             | European.      | Native. | Total. |              |
| Bijnour, ...      | 340       | 4,947                | 0                         | 0                           | 43             | 101     | 144    | 5,431        |
| Moradabad, ...    | 0         | 4,062                | 0                         | 0                           | 344            | 458     | 802    | 4,864        |
| Budaon, ...       | 2,096     | 1,593                | a 2,935                   | 0                           | 80             | 2,040   | 2,120  | 8,744        |
| Bareilly, ...     | 3,826     | 4,103                | b 5,076                   | 3,918                       | 520            | 1,459   | 1,979  | 19,702       |
| Shajehanpore, ... | 16        | 1,678                | 0                         | 2,306                       | 178            | 220     | 398    | 4,393        |
| Total, ...        | 6,278     | 16,383               | 8,811                     | 6,224                       | 1,165          | 4,278   | 5,443  | 43,139       |

a. Proceeds sale of arms. b. Accumulations of lapsed pension.

N. B.—Bareilly, column 7 of Tabular Statement.

Bareilly are extraordinary receipts, and such as are not annually drawn by the Dispensaries of these districts. I have not denoted the capital sums \* formerly lent out, but which are now invested, being anxious to shew, as nearly as possible, the receipts of last year. But for the native subscriptions at Budaon and Bareilly, (this latter being due to the influence of the Magistrate, Mr. Inglis,) the subscriptions would be disproportionately small. It is a most difficult matter to prevail on natives to pay up their subscription regularly.

53½. I proceed to notice the several Districts in detail.

### BIJNOUR.

54. There has been a great increase of patients owing apparently to the Branches having been opened, but the number of in-door patients seems rather large for Nugeena.

| DISPENSARIES.          | In-door Patients. | Out-door Patients. | Total, inclusive of No. remaining. |
|------------------------|-------------------|--------------------|------------------------------------|
| Bijnour, ... { 1859    | 111               | 4,447              | 4,584                              |
| { 1860                 | 157               | 2,675              | 2,873                              |
| Nugeena, ... { 1859    |                   |                    |                                    |
| { 1860                 | 133               | 1,862              | 2,006                              |
| Nujeebabad, { 1859     |                   |                    |                                    |
| { 1860                 | 76                | 3,453              | 3,544                              |
| Total, ... { 1859, ... | 111               | 4,447              | 4,584                              |
| { 1860, ...            | 366               | 7,990              | 8,423                              |
| Excess in 1860, ...    | 255               | 3,443              | 3,839                              |

55. *Surgical operations: Bijnour.*—There were no Surgical operations during 1859. Those during 1860 as detailed in the returns are given in the margin. These seem to be numerous at the Branches as compared

|                                 |     |
|---------------------------------|-----|
| Lithotomy, ...                  | 10  |
| Other important operations, ... | 15  |
| Minor ditto, ...                | 221 |
| Nugeena, ...                    | 342 |
| Nujeebabad, ...                 | 147 |
| Total,                          | 735 |



with those at the Sudder Station, but this may be accounted for by the smallness of the population at Bijnour itself. The returns of Bijnour differ somewhat from the other districts in Surgical detail.

56. There is an increase of Vaccine operations, but only half of these seem to have succeeded.

| DISPENSARIES. |   |              |  | Success-<br>ful. | Unsuc-<br>cessful. | Doubt-<br>ful. | Total. |
|---------------|---|--------------|--|------------------|--------------------|----------------|--------|
| Bijnour, ...  | { | 1859 ... ..  |  | 1,868            | 1,067              | 609            | 3,544  |
|               |   | 1860 ... ..  |  | 1,981            | 997                | 892            | 3,870  |
| Nugeena, ...  | { | 1859 ... ..  |  |                  | None.              |                |        |
|               |   | 1860 ... ..  |  | 51               | 52                 | 8              | 11.    |
| Nujeebabad,   | { | 1859 ... ..  |  |                  | None.              |                |        |
|               |   | 1860 ... ..  |  | 19               | 11                 | 27             | 57     |
| Total, ...    | { | 1859, ... .. |  | 1,868            | 1,067              | 609            | 3,544  |
|               |   | 1860, ... .. |  | 2,051            | 1,060              | 927            | 4,038  |

The total disbursements in 1860 are shown below. In the first six months of 1860, the establishments of Bijnour itself being paid for 8 months in 1859.

| DISTRICTS.           |                 | Estab-<br>lishment. | Medi-<br>cines.<br>Rs. | Dieting<br>patients.<br>Rs. | Miscel-<br>laneous. | Total. |
|----------------------|-----------------|---------------------|------------------------|-----------------------------|---------------------|--------|
| 1860.                |                 |                     |                        |                             |                     |        |
| Bijnour, ...         | { 1st 6 months, | 2,475               | 122                    | 88                          | 280                 | 2,965  |
|                      | { 2nd, ,, "     | 673                 | 40                     | 58                          | 259                 | 1,030  |
| Total, ...           |                 | 3,148               | 162                    | 146                         | 539                 | 3,995  |
| Nugeena, ...         | { 1st 6 months, | 248                 | 25                     | 11                          | 71                  | 355    |
|                      | { 2nd, ,, "     | 240                 | 23                     | 8                           | 23                  | 294    |
| Total, ...           |                 | 488                 | 48                     | 19                          | 94                  | 649    |
| Nujeebabad,          | { 1st 6 months, | 248                 | 27                     | 23                          | 82                  | 380    |
|                      | { 2nd, ,, "     | 240                 | 18                     | 13                          | 30                  | 301    |
| Total, ...           |                 | 488                 | 45                     | 36                          | 112                 | 681    |
| Grand Total, Rs. ... |                 | 4,124               | 255                    | 201                         | 745                 | 5,325  |

57. The receipts are stated below. The Bijnour Dispensary has no funds of its own, and some very small

subscriptions being excepted, is supported entirely by the Government donations. The amount floating appears to have been raised by subscriptions last year. But for this sum, the past year's expenditure would have exceeded the receipts.

| DISPENSARIES. | Floating Balance. | Government Donation. | Nuzool and other sources. | Interest on Investment. | SUBSCRIPTIONS. |         |        | Grand Total. |
|---------------|-------------------|----------------------|---------------------------|-------------------------|----------------|---------|--------|--------------|
|               |                   |                      |                           |                         | European.      | Native. | Total. |              |
| Bijnour, ...  | 340               | 3,810                | Nil.                      | Nil.                    | 43             | 111     | 154    | 4,304        |
| Nugeena, ...  | "                 | 568                  | "                         | "                       | "              | "       | "      | 568          |
| Nujeebabad,   | "                 | 569                  | "                         | "                       | "              | "       | "      | 569          |
| Total, ...    | 340               | 4,947                | "                         | "                       | 43             | 111     | 154    | 5,441        |

58. From para. 77 of the Assistant Secretary's Note. it appears that the Dispensaries of Bijnour were established in consequence of the visitation of fatal sickness, which threatened to depopulate the district. The Bijnour Dispensary building was erected by subscription. There is no subscription for the support of the Branches.

59. The Bijnour Dispensary was occupied by the prisoners from May 1858 to October 1860.

60. In Nugeena, the premises used for the Dispensary being found unsuitable, the Committee have rented a confiscated house at Rs. 2 per mensem.

61. There has been a falling off in the subscriptions, but the Officiating Magistrate, Mr. Wigram states, "that considering the state of the district they are as high as can be reasonably expected."

62. *Moradabad*.—The number of patients is nearly double of that of the preceding year, both at the chief station and its branch at Kasheepore. Credit is due to the exertions of the Sub-Assistant Surgeon, Tara Chund Pyne,

who was for some time virtually in sole charge of the Moradabad Institution.

| DISPENSARIES.               | In-door. | Out-door. | Total, inclusive of number remaining. |
|-----------------------------|----------|-----------|---------------------------------------|
| Moradabad, ... { 1859, ...  | 210      | 3,998     | 4,303                                 |
| { 1860, ...                 | 201      | 7,864     | 8,165                                 |
| Kasheepore, ... { 1859, ... | 14       | 1,466     | 1,487                                 |
| { 1860, ...                 | 144      | 3,085     | 3,251                                 |
| Total, ... { 1859, ...      | 218      | 5,464     | 5,790                                 |
| { 1860, ...                 | 345      | 10,919    | 11,416                                |
| Excess in 1860, ...         | 127      | 5,455     | 5,626                                 |

63. The operations in the statement below appear to be those only of an important nature; of minor operations there were 1,323.

| DISPENSARIES.   | 1859.          | SURGICAL OPERATIONS. |           |       |
|-----------------|----------------|----------------------|-----------|-------|
|                 |                | 1860.                |           |       |
|                 |                | 1st half.            | 2nd half. | Total |
| Moradabad, ...  | 52             | 25                   | 23        | 48    |
| Kasheepore, ... | "              | "                    | "         | "     |
|                 |                |                      |           |       |
|                 | Lithotomy, ... |                      |           |       |
|                 | Capital, ...   |                      |           |       |
|                 | Minor, ...     |                      |           |       |
|                 | Cases. 21      |                      |           |       |
|                 | 2              |                      |           |       |
|                 | 23             |                      |           |       |
|                 | 1,323          |                      |           |       |

64. Vaccine operations are much the same in number as in the preceding year, but the success has been considerably greater.

| DISPENSARIES.               | Successful. | Unsuccessful. | Doubtful. | Total. |
|-----------------------------|-------------|---------------|-----------|--------|
| Moradabad, ... { 1859, ...  | 1,780       | 637           | 628       | 3,045  |
| { 1860, ...                 | 2,200       | 545           | 303       | 3,048  |
| Kasheepore, ... { 1859, ... | "           | "             | "         | "      |
| { 1860, ...                 | "           | "             | "         | "      |
| Total, ... { 1859, ...      | 1,780       | 637           | 628       | 3,045  |
| { 1860, ...                 | 2,200       | 545           | 303       | 3,048  |

65. The current expenditure is shown to be Rs. 4,106, slightly in excess of the Government donation, but the subscription is large for Moradabad, and due mainly to the influence of the Magistrate, Mr. J. Strachey. The sources of income are shown in the table below.

| DISPENSARIES. |                     | Establishments. | Country Medicine. | Dieting Patients. | Miscellaneous. | Total. |
|---------------|---------------------|-----------------|-------------------|-------------------|----------------|--------|
| Moradabad,    | 1st six months, ... | 1,710           | 61                | 30                | 16             | 1,817  |
|               | 2nd " " "           | 1,841           | 55                | 67                | 8              | 1,771  |
|               |                     | 3,351           | 116               | 97                | 24             | 3,588  |
| Kasheepore,   | 1st six months, ... | 204             | 30                | 13                | 6              | 253    |
|               | 2nd " " "           | 204             | 31                | 24                | 6              | 265    |
|               |                     | 408             | 61                | 37                | 12             | 518    |
| Total, ...    |                     | 3,759           | 177               | 134               | 36             | 4,106  |

| DISPENSARIES.   | Floating Balance. | Government Donation. | Nuzzool and other sources. | Interest on investments. | SUBSCRIPTIONS. |         |        | Grand Total. |
|-----------------|-------------------|----------------------|----------------------------|--------------------------|----------------|---------|--------|--------------|
|                 |                   |                      |                            |                          | European.      | Native. | Total. |              |
| Moradabad, ...  | "                 | 3,544                | "                          | "                        | 344            | 458     | 802    | 4,346        |
| Kasheepore, ... | "                 | 518                  | "                          | "                        | "              | "       | "      | 518          |
| Total, ...      | "                 | 4,062                | "                          | "                        | 344            | 458     | 802    | 4,864        |

66. The Dispensary of Moradabad has been much more used during the past year. It has been removed to the new building, which is spacious and conveniently situated.

67. The Dispensary of Kasheepore would seem to need the occasional visits of the European Medical officer, and, as soon as the funds can be raised, a more suitable building might be provided. This branch, if properly supervised, should be most useful to the unhealthy neighbourhood.

68. *Budaon*.—There has been an increase in the total

| DISPENSARIES.           | In-door Patients. | Out-door Patients. | Total, inclusive of number remaining. |
|-------------------------|-------------------|--------------------|---------------------------------------|
| Budaon, ... { 1859, 183 | 9,458             | 9,700              |                                       |
| ... { 1860, 202         | 8,953             | 9,248              |                                       |
| Suheswan, { 1859, 68    | 7,225             | 7,337              |                                       |
| ... { 1860, 65          | 5,151             | 5,274              |                                       |
| Bissowlee, { 1859, 65   | 3,610             | 3,742              |                                       |
| ... { 1860, 132         | 4,376             | 4,515              |                                       |
| Goonour, ... { 1859, 57 | 4,421             | 4,499              |                                       |
| ... { 1860, 50          | 5,050             | 5,101              |                                       |
| Datagunge, { 1859, 4    | 500               | 510                |                                       |
| ... { 1860, 52          | 3,675             | 3,769              |                                       |
| Bilsee, ... { 1859, "   | "                 | "                  |                                       |
| ... { 1860, 43          | 2,375             | 2,453              |                                       |
| Total, ... { 1859, 377  | 25,244            | 25,818             |                                       |
| ... { 1860, 561         | 29,563            | 30,382             |                                       |
| Excess in 1860, ...     | 187               | 4,319              | 4,561                                 |

number of patients, though a less number have been treated at the Head Station, owing to the opening of the Branches on a more efficient footing. This result is favorable, notwithstanding the want of a District Civil Assistant Surgeon, and is due mainly to the interest evinced by the Officiating Magistrate, Mr. Carmichael, and the estimation in which the local Native Doctor, Reyasut-ool-lah, is held. A Civil Assistant Surgeon has since been appointed.

| DISTRICT.    | SURGICAL OPERATION. |          |          |
|--------------|---------------------|----------|----------|
|              | 1859                | 1860.    |          |
| Budaon.      | 85                  | 1st half | 2nd half |
| Lithotomy, 6 |                     | 110      | 10       |
| Capital, 4   |                     |          |          |
|              | 10                  | 120      |          |
| Minor, 502   |                     |          |          |

69. The Vaccine operations performed are much the same as last year, but the number classed as "successful" is less, and "doubtful," is more than in the preceding; due probably to a more careful classification.

| DISTRICT.   |                 | VACCINE OPERATION. |                |            |        |
|-------------|-----------------|--------------------|----------------|------------|--------|
|             |                 | Success-ful.       | Unsuc-cessful. | Doubt-ful. | Total. |
| Budaon, ... | ... { 1859, ... | 1,798              | 676            | 375        | 2,849  |
|             | ... { 1860, ... | 1,675              | 645            | 538        | 2,858  |



71. The income is shown in the accompanying table.

| DISPENSARIES.  | Floating Balance. | Government Donation. | Nuzzool and other sources. | Interest on Investments. | SUBSCRIPTION. |        |        | Grand Total. |
|----------------|-------------------|----------------------|----------------------------|--------------------------|---------------|--------|--------|--------------|
|                |                   |                      |                            |                          | European.     | Native | Total. |              |
| Budaon, ...    | 0                 | 1,594                | 0                          | 0                        | 0             | 0      | 0      | 1,594        |
| Subeswan, ...  | 2,096             | 0                    | 2,935                      | 0                        | 80            | 2,040  | 2,120  | 7,151        |
| Bissowlee, ... |                   |                      |                            |                          |               |        |        |              |
| Goonour, ...   |                   |                      |                            |                          |               |        |        |              |
| Datagunge, ... | 2,096             | 1,594                | 2,935                      | 0                        | 80            | 2,040  | 2,120  | 8,745        |
| Bilsee, ...    |                   |                      |                            |                          |               |        |        |              |
| Total, ...     | 2,096             | 1,594                | 2,935                      | 0                        | 80            | 2,040  | 2,120  | 8,745        |

72. The large sum raised by Native subscriptions for the support of the Branch institutions, has before attracted attention. Mr. Carmichael, after further and more recent enquiry, explains that out of 2,113 mouzahs in his district, the proprietors of 1,967 have been persuaded by some of his predecessors, Mr. W. Edwards, he believes, to contribute a percentage on their juma, varying from 2 to 4 per cent.

73. The total sum per annum thus raised, is Rs. 1,757, and this is further increased by contributions from other natives.

74. The accumulations of the Nuzzool fund which formerly, as it appears from the Assistant Secretary's Note, were devoted to the support of the Goonour and Subeswan Dispensaries, are now being spent upon a gunj in the "city of Budaon."

75. *Barcilly*.—The statement of patients treated, and of the operations, will be viewed as satisfactory.

| DISPENSARIES.              | In-door Patients. | Out-door Patients. | Total, inclusive of number remaining. |
|----------------------------|-------------------|--------------------|---------------------------------------|
| Barcilly, ... { 1859, ...  | 274               | 25,608             | 26,108                                |
| { 1860, ...                | 405               | 30,217             | 30,995                                |
| Pilibheet, ... { 1859, ... | 60                | 9,222              | 9,354                                 |
| { 1860, ...                | 69                | 1,213              | 12,190                                |
| Baherece, ... { 1859, ...  | 0                 | 2,729              | 2,853                                 |
| { 1860, ...                | 28                | 4,583              | 4,748                                 |
| Aonla, ... { 1859, ...     | 0                 | 5,782              | 5,839                                 |
| { 1860, ...                | 0                 | 6,912              | 6,969                                 |
| Beesulpore, { 1859, ...    | 9                 | 2,304              | 2,358                                 |
| { 1860, ...                | 6                 | 3,518              | 3,569                                 |
| Total, ... { 1859, ...     | 343               | 45,645             | 46,512                                |
| { 1860, ...                | 58                | 57,243             | 58,471                                |
| Excess in 1860, ...        | 165               | 11,598             | 11,959                                |

The cases of Surgical operations detailing Lithotomy, and other cases, are for the half-year only; I regret that I cannot give the detail for the first six months.

| DISPENSARIES.       | SURGICAL OPERATIONS. |                |                |
|---------------------|----------------------|----------------|----------------|
|                     | 1859.                | 1860.          |                |
|                     |                      | 1st half<br>48 | 2nd half<br>72 |
| Bareilly, ... ..    | 85                   | 120            |                |
| Branches ... ..     | 0                    | 0              |                |
| Note.—Lithotomy, 42 |                      |                |                |
| Capital, ... ..     | 30                   |                |                |
|                     | 72                   |                |                |
| Minor, ... ..       | 769                  |                |                |

76. The Vaccine operations, it will be noticed, are treble the number of the former year, and the successful cases are nearly in the same proportion.

| DISPENSARIES.            | VACCINE OPERATIONS. |               |           |        |
|--------------------------|---------------------|---------------|-----------|--------|
|                          | Successful.         | Unsuccessful. | Doubtful. | Total. |
| Bareilly and { 1859,...  | 3,224               | 831           | 264       | 4,319  |
| its Branches, { 1860,... | 9,187               | 3,292         | 1,181     | 13,660 |

77. In this, as in other cases, the merely nominal entries of receipts and disbursements of sums capitalized, have not been shown. The actual expenditure of the year is exhibited.

| DISPENSARIES.    |                                      |     | Establish-<br>ment. | Country<br>Medicines. | Dieting<br>Patients. | Miscella-<br>neous. | Total. |
|------------------|--------------------------------------|-----|---------------------|-----------------------|----------------------|---------------------|--------|
| Bareilly, ...    | { 1st six months, ...<br>2nd " " ... | ... | 1,371               | 241                   |                      | 1,065               | 2,677  |
|                  |                                      |     | 1,473               | 170                   | 135                  | 894                 | 2,672  |
|                  |                                      |     | 2,844               | 546                   |                      | 1,959               | 5,349  |
| Pilibheet,...    | { 1st six months, ...<br>2nd " " ... | ... | 312                 | 0                     | 0                    | 0                   | 312    |
|                  |                                      |     | 252                 | 56                    | 18                   | 0                   | 326    |
|                  |                                      |     | 564                 | 56                    | 18                   | 0                   | 638    |
| Buherce, ...     | { 1st six months, ...<br>2nd " " ... | ... | 285                 | 0                     | 0                    | 0                   | 285    |
|                  |                                      |     | 252                 | 38                    | 10                   | 0                   | 200    |
|                  |                                      |     | 537                 | 38                    | 10                   | 0                   | 585    |
| Aonla, ...       | { 1st six months, ...<br>2nd " " ... | ... | 286                 | 0                     | 0                    | 0                   | 286    |
|                  |                                      |     | 252                 | 37                    | 0                    | 200                 | 489    |
|                  |                                      |     | 538                 | 37                    | 0                    | 200                 | 775    |
| Beesulpore,      | { 1st six months, ...<br>2nd " " ... | ... | 280                 | 0                     | 0                    | 0                   | 330    |
|                  |                                      |     | 252                 | 28                    | 0                    | 50                  | 280    |
|                  |                                      |     | 532                 | 28                    | 0                    | 50                  | 610    |
| Grand Total, ... |                                      |     | 5,015               | 733                   |                      | 2,209               | 7,957  |



78. The Cash Account contains two large items, "Nuz-zool," and "Interest on investments," which have been realized in the lump. The next year's account will not have such large receipts.

| DISPENSARIES.  | Floating Balance. | Government Donation. | Nuzool and other sources. | Interest on Investment. | SUBSCRIPTIONS. |         |        | Grand Total. |
|----------------|-------------------|----------------------|---------------------------|-------------------------|----------------|---------|--------|--------------|
|                |                   |                      |                           |                         | European.      | Native. | Total. |              |
| Bareilly, ...  | 2,453             | 2,879                | 5,255                     | 3,919                   | 520            | 1,459   | 1,979  | 16,485       |
| Pilibheet, ... | 0                 | 639                  | 0                         | 0                       | 0              | 0       | 0      | 639          |
| Buheree, ...   | 0                 | 586                  | 0                         | 0                       | 0              | 0       | 0      | 586          |
| Aonla, ...     | 516               | 0                    | 624                       | 0                       | 0              | 0       | 0      | 1,140        |
| Beesulpore,    | 857               | 0                    | *6,347                    | 0                       | 0              | 0       | 0      | 7,204*       |
| Total, ...     | 3,826             | 4,104                | *12,226                   | 3,919                   | 520            | 1,459   | 1,979  | 26,054*      |

\* Note.—Of this sum Rs. 6,500 was invested in Government Securities during the year.

79. *Bareilly Dispensary.*—The arrears of the Hukeem's lapsed pension were drawn from January 1857 to December 1860 in a lump, under the sanction of Government. This amount, and the arrears of interest, will be used in the construction of an additional building, as subsequently recommended by the Deputy Inspector General of Hospitals.

80. Repairs of the Branch Buildings will also be met from the accumulated funds, and arrangements will be made to extend the usefulness of those institutions.

|                 |     |       |  |
|-----------------|-----|-------|--|
| Pilibheet, ...  | ... | 2,000 |  |
| Buheree, ...    | ... | 500   |  |
| Beesulpore, ... | ... | 500   |  |
| Aonla, ...      | ... | 500   |  |

81. *Pilibheet Dispensary*.—The additions required before the Mutiny have been subsequently undertaken with the funds at the disposal of the Committee.

82. *Buheree Dispensary*.—This Dispensary has always been separate from the one established by Captain Jones, which latter was supported from the Forest Collections.

83. The Native Doctor of the Terai Dispensary, in the unhealthy season, used to reside at Buheree; but in the healthy six months of the year he accompanied the camp of Captain Jones, the officer in fiscal charge of the Terai.

84. But the separate Buheree Dispensary rendered, and still renders, considerable medical relief to the people of its own pergunnah, independently of affording treatment to occasional patients from the neighbouring Terai district.

85. *Beesulpore Dispensary*.—The amount subscribed in 1847 for the maintenance of this Branch has, under the orders of the Government, been realized from the zemindars, to whom it had been lent at a high rate of interest, viz., 12 per cent. per annum.

86. It has been invested in Government Securities. But the interest now yielded amounts only to Rs. 30 per mensem; but the expenses are Rs. 50.

87. The Officer in charge of the pergunnah last year failed to raise subscriptions, the people telling him that they had to "pay income tax, and could not afford more."

88. Since the 1st January 1860, the Native Doctor has been supported by the subscriptions collected at Bareilly, and the surplus funds.

89. *Aonla Dispensary*.—The Aonla Dispensary, supported and endowed by the liberality of Hukeem Saadut Alee Khan, has been repaired and much improved during the past year.

90. *Shajehanpore*.—There is great improvement in the General Return, but the surgical and vaccine cases are below the number of last year: there have, however, been fifteen Lithotomy cases. The institution has had the services

# 150 SELECTIONS FROM THE RECORDS OF GOVERNMENT.

of Dr. Bogle for a great portion of the year, and the entire results, notwithstanding the numerical paucity of surgical cases are favorable.

| DISPENSARIES.       |   |           |           | In-door Patients. | Out-door Patients. | Total, inclusive of No. remaining. |
|---------------------|---|-----------|-----------|-------------------|--------------------|------------------------------------|
| Shajehanpore, ...   | { | 1859, ... | 1860, ... | 186               | 8,463              | 8,643                              |
| Gooluria, ...       | { | 1859, ... | 1860, ... | 174               | 11,029             | 11,203                             |
| Kutra, ...          | { | 1859, ... | 1860, ... | 125               | 1,532              | 1,657                              |
| Total, ...          | { | 1859, ... | 1860, ... | 199               | 1,919              | 2,118                              |
| Excess in 1860, ... | { | 1859, ... | 1860, ... | 91                | 2,911              | 3,002                              |
|                     |   |           |           | 65                | 4,277              | 4,342                              |
|                     |   |           |           | 402               | 12,819             | 13,221                             |
|                     |   |           |           | 434               | 17,225             | 17,659                             |
|                     |   |           |           | 36                | 4,376              | 4,412                              |

| DISTRICT.            |     |  |  | SURGICAL OPERATIONS. |                     |
|----------------------|-----|--|--|----------------------|---------------------|
|                      |     |  |  | 1859.                | 1860.               |
| Shajehanpore,        |     |  |  |                      | 1st half \| 2nd half |
| Note.—Lithotomy, ... | 15  |  |  | 31                   | 11 \| 29             |
| Capital, ...         | 5   |  |  |                      | 31                  |
| Minor, ...           | 20  |  |  |                      |                     |
|                      | 341 |  |  |                      |                     |

| DISTRICTS.      |       |       |     | VACCINE OPERATIONS. |               |           |        |
|-----------------|-------|-------|-----|---------------------|---------------|-----------|--------|
|                 |       |       |     | Successful.         | Unsuccessful. | Doubtful. | Total. |
| Shajehanpore, { | 1859, | 1,891 | 510 | 332                 | 2,736         |           |        |
|                 | 1860, | 1,692 | 350 | 268                 | 2,410         |           |        |
| Gooluria, ... { | 1859, | 89    | 67  | 72                  | 228           |           |        |
|                 | 1860, | 276   | 67  | 109                 | 453           |           |        |
| Kutra, ... {    | 1859, | 61    | 42  | 14                  | 117           |           |        |
|                 | 1860, | 63    | 96  | 43                  | 202           |           |        |
| Total, ... {    | 1859, | 2,044 | 619 | 418                 | 3,081         |           |        |
|                 | 1860, | 2,032 | 513 | 520                 | 3,065         |           |        |

91. There was some confusion in the account of the former year, but the receipts and disbursements are all brought up to date, and the amount of subscriptions is respectable for so small a station. Dr. Bogle reports that the funds of all the Dispensaries are now in a prosperous condition.

| DISPENSARIES.        |                 | Estab-<br>lish-<br>ments. | Country<br>Medicines. | Dieting Pa-<br>tients. | Miscellane-<br>ous. | Total. |
|----------------------|-----------------|---------------------------|-----------------------|------------------------|---------------------|--------|
| Shajehanpore, {      | 1st six months, | 725                       | 34                    | 21                     | 76                  | 856    |
|                      | 2nd " "         | 725                       | 27                    | 47                     | 54                  | 853    |
|                      |                 | 1,450                     | 61                    | 68                     | 130                 | 1,709  |
| Gooluria, ... {      | 1st six months, | 86                        | 1                     | 2                      | 21                  | 110    |
|                      | 2nd " "         | 430                       | 26                    | 14                     | 657                 | 1,127  |
|                      |                 | 516                       | 27                    | 16                     | 678                 | 1,237  |
| Kutra, ... {         | 1st six months, | 132                       | 28                    | 7                      | 132                 | 196    |
|                      | 2nd " "         | 348                       | 31                    | 12                     | 54                  | 445    |
|                      |                 | 480                       | 69                    | 19                     | 186                 | 744    |
| Grand Total, Rs. ... |                 | 2,446                     | 147                   | 103                    | 994                 | 3,690  |

*Note.*—During the 2nd half-year, disbursements on account establishments, &c., during the 1st half, were made for the Branches and periods noted below.

Gooluria, for the months from March to June 1860.

Kutra, for ditto from April to June 1860.

| DISPENSARIES. | Floating Balance. | Government<br>Donation. | Nuzzool and other<br>sources. | Interest on Invest-<br>ment. | SUBSCRIPTIONS. |         |        | Grand Total. |
|---------------|-------------------|-------------------------|-------------------------------|------------------------------|----------------|---------|--------|--------------|
|               |                   |                         |                               |                              | European.      | Native. | Total. |              |
| Shajehanpore, | 0                 | 1,678                   | 0                             | 0                            | 178            | 0       | 178    | 1,856        |
| Gooluria, ... | 0                 | 0                       | 0                             | 1,646                        | 0              | 110     | 110    | 1,756        |
| Kutra, ...    | 15                | 0                       | 0                             | 660                          | 0              | 110     | 110    | 785          |
| Total,...     | 15                | 1,678                   | 0                             | 1,306                        | 178            | 220     | 398    | 4,397        |

92. The two Branches, Gooluria and Kutra, have each a capital of Rs. 8,000; the first of these had lent the sum on mortgage to a rebel, and the Government has caused

the amount to be refunded. It has been invested in Government Securities. Arrangements are being made for calling in the loan of Kutra, and similarly securing it; which will be reported hereafter.

93. These two Branches have been recently opened. Of them Dr. Bogle says that, at the time of his visit, he saw little going on at these establishments, and he is unable to say "any thing as to their positive usefulness in their respective districts." It is to be hoped that the working of these institutions may shew more decided successful results, as the people were formerly so liberal in their subscriptions.

#### AGRA DIVISION.

94. *Agra*.—The Thomason Hospital and its Branch Dispensaries of "Loha ki Mundi," "Taj Gunj," and "Dhurm-salla." The entire charge of the Hospital is defrayed by Government; the Branches are supported by Local or Nuzzool Funds.

95. *Accounts*.—His Honor, on the return for the 2nd half of 1860, remarked that Agra was almost the only station where no subscriptions, either from Europeans or Natives, were exhibited in the accounts. The Collector explained that he considered it unadvisable to make direct applications to natives for subscriptions; but that as a scheme of Municipal Government was under consideration, the question might be appropriately deferred until the Municipal Committee could decide as to what portion of the charge for the Dispensary could be fairly borne by the Local Funds and Taxes.

96. *Patients*.—The number of patients treated, exceed the number treated during 1859 by 833, the total number during 1860 being 14,374 against 13,541 in 1859.

97. It is observable that, while the cost of 7,086 patients at the Branches is only Rs. 1,235-2-8, the 7,288 patients at the Hospital cost Rs. 840-14-3; much of this.

difference is due to the large number (995) of in-patients at the Hospital.

98. *Vaccine*.—Vaccine operations shew a slight decrease over the results obtained in 1859.

|          | Successful. | Unsuccessful. | Doubtful. | Total. |
|----------|-------------|---------------|-----------|--------|
| 1859 ... | 1,952       | 560           | 350       | 2,862  |
| 1860 ... | 1,768       | 583           | 453       | 2,804  |

99. No classification of Surgical operations has been shewn in the returns. Of 850 operations, all appear to have been successful, except 5.

### MUTTRA DISTRICT.

100. The premises formerly occupied by the Dispensary at a monthly rent of Rs. 15 having been considered by the Committee to be unsuitable and unhealthy, the Dispensary was removed to a more commodious building, which was procured at a rent of Rs. 20 per mensem.

101. *Account*.—The total expenditure during the year amounted to Rs. 3,090-11-3, of which sum Rs. 3,070-11-3 was contributed by Government.

102. The private funds of the Institution are considerable; and, at the close of the year, a balance of Rs. 34,001-15-0 remained at the disposal of the Committee, Rs. 18,275 of which was raised in 1859 by the sale of the old Dispensary Building. Rs. 12,000 have been invested in the 5½ per cent. loan, and the Committee were informed in G. O. No. 2627, dated 5th October 1861, that the interest on this Note, amounting to Rs. 55 per mensem, must be applied to diminish *pro tanto*, the Government donation, which henceforward will not exceed Rs. 195 per mensem.

103. *Patients*.—The number of patients has slightly decreased during the year

|           | In-door. | Out-door. | Total. |
|-----------|----------|-----------|--------|
| 1859, ... | 139      | 8,658     | 8,797  |
| 1860, ... | 141      | 8,080     | 8,221  |

under review, but the difference is not greater than might have been expected, owing to the *general*

healthiness of the year. The removal of the Dispensary also probably had some slight effect at first in diminishing the attendance.

104. Cholera was prevalent for a short time, during which depôts of medicine were established at suitable localities. The Cholera patients however treated from these depôts have not been included in the Dispensary returns.

105. *Vaccine*.—The number of cases is 1,251; of which 1,054 were successful: this falls short by 1,099 of the number of cases entered in the returns for 1859.

Owing however to the fact that no vaccine lymph was procurable from the Superintendent of Vaccine, Agra Division, operations were suspended during October, November and December; the returns consequently comprise only half the usual season.

106. *Apprentices*.—Three new apprentices were entertained shortly before 1st January, in place of two who had proceeded to the Agra Medical College. The third had been dismissed for misconduct.

107. *Surgical Operations*.—Twenty-one major operations were performed during the year, of which 18 were successful.

#### FURRUCKABAD DISTRICT.

108. *Account*.—The balance in hand at the close of the year was Rs. 6,378-12-1, not including 3 years' interest, due on a Government note for Rs. 4,000 which was lost during the mutiny, and a duplicate of which had not been obtained up to the date of the report.

109. The native subscriptions have risen from Rs. 125 in 1859, to Rs. 1,918 in 1860, which bears a fair proportion to the amount contributed by Government during the year, which was Rs. 2,817-10-4.

110. The sum of Rs. 1,300 was invested by the Committee in a loan to a native banker at Furruckabad, whose security and credit is considered unexceptionable.

As a general rule, His Honor is averse to this practice. Funds at the disposal of Dispensary Committees partake of the nature of trusts, and should be invested only in Government Security.

111. *Patients*.—Relief was afforded during the year to 10,503 patients, an excess of 346 over the number treated in 1859.

112. *Vaccine*.—Vaccine operations also have increased, as will be seen by the appended table.

|       |     | Successful. | Unsuccessful. | Doubtful. | Total. |
|-------|-----|-------------|---------------|-----------|--------|
| 1859, | ... | 402         | 191           | 50        | 643    |
| 1860, | ... | 754         | 289           | 84        | 1,127  |

113. *New Dispensaries*.—The expenditure during the year has been only Rs. 106-15-8 in excess of the amount allowed by Government, that sum having been expended in the necessary repairs of Buildings, white-washing and renewal of Hospital furniture, the object at present kept in view being the formation of a fund the interest of which may be eventually expended in increasing the number of in-patients.

114. It is necessary to mention in this place that, for future years, the expenditure in excess of the sum allowed by Government will be greater for the following reasons.

115. At the end of 1860 a new Branch Dispensary was opened at Futtehgurh, an account of the progress of which will be given in due course in the Annual Return for 1861. Suffice it to say here, that this new Dispensary is situated in the centre of the Futtehgurh Bazaar, that it is a pueka building, standing in a compound of its own, and containing three good sized wards with a verandah surrounding them on all sides, the whole place having a cheerful, cleanly, and very respectable appearance. The attendance at the new Dispensary is increasing steadily, its situation in the Sudder Station allows of constant superintendence, and there appears no reason why this Dispensary, though a Branch in name, should not even-



tnally rival its parent in the City of Furruckabad. Indeed, the thought was at one time entertained that it would be better to make Futtehghurh the main, and Furruckabad the Branch, Dispensary, removing the Sub-Assistant Surgeon from the latter to the former establishment. Upon further consideration this was found to be undesirable for the following reason, that to remove the Sub-Assistant Surgeon would be prejudicial to the Furruckabad Dispensary, however useful to the Futtehghurh one. This was believed to be bad in policy, the object to be kept steadily in view being the establishment of a successful Dispensary at Futtehghurh, without in any way injuring or decreasing the attendance at the Dispensary in the City of Furruckabad, and it is hoped this may be brought about.

116. The only expense borne by Government in the maintenance of this new Dispensary, is the pay of the Resident Native Doctor, and the supply of a small quantity of European medicine, all other expense of medicine, diet, clothing, apparatus, repairs, &c., being borne by the Dispensary Fund.

#### MYNPOORY DISTRICT.

117. There appears to be no Dispensary in operation here. The Commissioner, in July 1859, reported that a temporary Dispensary had been opened, supported by private funds. It would seem, however, that it was closed again shortly afterwards, as no mention is made of its existence in the present returns.

#### ETAWAH DISTRICT.

118. *Account.*—At the close of the year no balance was in hand at the disposal of the Committee. By G. O. No. 660, dated 29th May 1861, the refund of the Dispensary deposit of Rs. 2,652-1-6, which was plundered from the Treasury during the mutiny, was sanctioned. Rs. 20 only were collected by subscription during the year. His Honor remarked on this point, and from returns received in the course of 1861 it appears that an appeal has been

made to the charity of the native residents, which has met with marked success, a monthly subscription of Rs. 52 having been promised. The Dispensary building during the year under report was occupied by the High School, which probably accounts for the comparatively small number of patients shewn in the returns. It has however been subsequently restored to the purpose for which it was destined.

119. *Patients*.—1,522 patients were relieved during the year under report, or 599 in excess of the number treated during 1859.

120. There is a large increase in the Vaccine operations.

|           | Successful. | Unsuccessful. | Doubtful. | Total. |
|-----------|-------------|---------------|-----------|--------|
| 1859, ... | 10          | 24            | 87        | 121    |
| 1860, ... | 300         | 253           | 233       | 786    |

#### ETAH DISTRICT.

121. The Dispensary has been in operation during the whole of the year under report.

122. *Account*.—A balance of Rs. 334-11-3 was exhibited at the close of the year.

123. *Patients*.—The number of patients (996) increased by 73, as compared with the number treated during 1859, but the attendance is still very unsatisfactory, as compared with the Government donation of Rs. 1,341-0-0.

124. The subscriptions have risen from Rs. 183-8-0 in 1859, to Rs. 588-12-7 in 1860.

125. *Vaccine*.—Vaccine operations have considerably decreased.

|           | Successful. | Unsuccessful. | Doubtful. | Total. |
|-----------|-------------|---------------|-----------|--------|
| 1859, ... | 267         | 165           | 124       | 556    |
| 1860, ... | 98          | 76            | 22        | 196    |

An explanation on this point has been called for.

#### ALLAHABAD DIVISION.

##### ALLAHABAD DISTRICT.

126. The Commissioner observes that the Financial operations of the past year are distinguished by a large

subscription for the erection of a Central Dispensary and Hospital, to be designated the "Colvin Dispensary," as a tribute of respect to the memory of the late Lieutenant Governor. The cost of this building to the close of 1860 exceeded Rs. 17,000, the estimate having originally been about Rs. 15,000; but difficulties which had not been anticipated, owing to the faulty nature of the site, necessitated a larger expenditure upon the foundations than was originally estimated for.

127. *Account.*—The fixed allowance for Establishment is Rs. 3,714. The charge for dieting patients Rs. 164, of bazaar medicines, 80, and of miscellaneous contingencies, including rent of a temporary Hospital, 172, making the total sum received from Government, Rs. 4,132. The private subscriptions, both European and Native, have been very liberal, the former amounting to Rs. 1,836, the latter to Rs. 7,195. The Local Funds contributed Rs. 5,000, a special donation was granted by the Government to complete the Hospital, and a further sum of Rs. 2,300 was realized from the sale of broken arms collected during the disarming of the district. From these sources the buildings of the Daragunge Branch have been restored, and a new Branch opened in the Kuttra, but the greater proportion has been devoted to the main buildings near the Railway Station.

128. *Patients.*—The patients treated during the year, shew an increase of 4,479, the number having been:—

|       |     | In-door. | Out-door. |
|-------|-----|----------|-----------|
| 1859, | ... | 31       | 11,058    |
| 1860, | ... | 211      | 15,326    |

129. The Surgical operations amounted to 1,266, as compared with 851 in the preceding year.

130. *Vaccine.*—The successful vaccinations have, in like manner, increased from 845 to 1,817.

131. The Branch Dispensary at Phoolpoore has not yet been re-established, and the building is at present occupied as a school-house under the Department of Public Instruction.

#### FUTTEHPORE DISTRICT.

132. *Accounts.*—The balance at the close of the year amounts to Rs. 3,986-2-6. This sum will be funded, and the interest applied to the dieting of in-door patients.

133. The subscriptions have been most liberal, *viz.*, the European residents have contributed Rs. 1,481, against Rs. 543 in 1859, while Rs. 1,777 were collected from the natives, who gave nothing in the previous year; the total sum thus collected, Rs. 4,725-10-1 bears a very fair comparison with the Government grant of Rs. 1,057-9-10.

134. *Patients.*—The number of patients have increased from 467 in 1859, to 1,721 in 1860.

135. Of 762 Surgical operations, 7 only were unsuccessful.

136. *Vaccine.*—There were no vaccine operations during the year.

137. The Lieutenant-Governor recorded the following observations relative to the Dispensary, on his visit to Futtehpore in 1859.

138. "This has been rebuilt with funds obtained from private contributors, and subscriptions to the amount of Rs. 50 and upwards per mensem have been promised for the maintenance of the Institution. This result is very creditable to the liberal spirit of the Futtehpore community, no less than to the exertions of Doctor Sherlock, the Civil Assistant Surgeon, (now on leave,) and of Mr. James Power.

139. "A just claim has been established to the assistance and support of Government, and the Lieutenant-Governor has much pleasure in giving his sanction to the following establishment.

|                |     |     |     |     | Rs. |
|----------------|-----|-----|-----|-----|-----|
| Native Doctor, | ... | ... | ... | ... | 35  |
| Compounder,    | ... | ... | ... | ... | 6   |
| Cook,          | ... | ... | ... | ... | 5   |
| Bhistee,       | ... | ... | ... | ... | 4   |
| Chowkeedar,    | ... | ... | ... | ... | 4   |
| Sweeper,       | ... | ... | ... | ... | 4   |

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Total Rs. 58

The Officiating Civil Assistant Surgeon in charge, Doctor Switzer, becomes entitled, under the Medical Code, to draw, } 30

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Total Rs. 88  
per mensem.

### BANDA DISTRICT.

140. *Accounts*.—The total sum expended on this Dispensary during the year 1860, amounted to Rs. 2,230-13-3. The Government contribution was Rs. 2,026-1-3; contributions from natives were received, aggregating Rs. 1,501-4-5 in the whole year. This result contrasts favorably with the amount collected from similar sources, during the year 1859, which was only Rs. 66. There were no subscriptions from Europeans. There was a balance in hand on the 31st December of Rs. 1,362-8-5.

141. *Patients*.—The number of patients relieved during the year is slightly in excess of that of last year, *e. g.* :—

|           | In-door. | Out-door. | Total. |
|-----------|----------|-----------|--------|
| 1859, ... | 126      | 2,210     | 2,336  |
| 1860, ... | 66       | 2,676     | 2,742  |

142. *Surgical Operations*.—Only two operations are entered by the Civil Assistant Surgeon in the returns for 1860. It is presumed that the Civil Assistant Surgeon has omitted mention of minor operations.

143. *Vaccine*.—Only 30 cases of vaccination are reported to have been performed in Banda during the year 1860.

144. *Kirwee Branch Dispensary Accounts.*—The total expenditure during the year 1860, in the Branch Dispensary at Kirwee, amounted to Rs. 632-9-10.

145. The sum drawn as the Government donation was 499-12-4.

146. Subscriptions were collected from the native community, amounting to Rs. 135-4-0. There was a balance in hand on 31st December 1860 of Rs. 34-13-6.

147. *Patients.*—The total number of patients treated during the year was 2,635, which shows an increase of 1,245 on the results of the year 1859.

148. No surgical operations of great importance, nor vaccinations, have been performed at this branch during the year under review.

#### CAWNPORE DISTRICT.

149. The Government contribution was larger in 1859 than in 1860, having been Rs. 3,793 in the former, and 3,386 in the latter, year.

150. *Accounts.*—Government bears the cost of the establishment, of a moiety of the house rent, and of the dieting of the authorized number of eight in-door patients. These are charges which do not fluctuate, except perhaps the last, in a very small degree. Government also pays for bazaar medicines, and miscellaneous expenses, which are variable charges. The vested fund bears the cost of all in-door patients beyond the authorized limit of eight, and the hospital charges incidental to these additional patients.

151. The subscriptions have fallen off during 1860, as only Rs. 1,240 were received from Europeans, and Rs. 290 from Natives; whereas, in 1859, Rs. 2,112 were received from Europeans, and Rs. 492 from Natives. This decrease is attributed to the diminution of the European society, consequent on the removal of the Garrison, and the reluctance of natives to subscribe during the progress of the income tax assessment. The income of these institutions

is nevertheless much in excess of the expenditure; and, during the past year, Rs. 5,000 have been added to the former vested fund of Rs. 10,000. The total expenditure during the year was Rs. 4,550.

152. The Collector was very successful in inducing the zemindars of Bhognepore to contribute a small percentage (4 annas) on their revenue demand, for the maintenance of a Dispensary; Rs. 475 per annum have been guaranteed, and the building is nearly completed.

153. A similar institution is in course of establishment at Ghatampur.

154. The money realized from the sale of destroyed arms was devoted to the erection of a Branch Dispensary building in the suburbs of Cawnpore, at Nawab Ganje, at a cost of Rs. 796-14-9. It was in contemplation to erect another Branch from the same source at General Ganje.

155. *Patients*.—There has been an increase in the number of patients in 1860, as compared with the previous year, the number having been—

|           | In-door. | Out-door. | Total. |
|-----------|----------|-----------|--------|
| 1859, ... | 419      | 8,012     | 8,461  |
| 1860, ... | 550      | 9,401     | 9,951  |

The total increase therefore is 1,490 cases.

1,032 operations [all minor] were performed, all of which were successful.

156. *Vaccine*.—Vaccine operations shew a slight decrease as compared with the previous year.

1859, ... 569 cases, of which 476 were successful.

1860, ... 371 cases, of which 272 were successful.

## BENARES DIVISION.

### AZIMGURH DISTRICT.

157. *Accounts*.—At the close of the year 1860 a balance in hand was exhibited amounting to Rs. 1,013-12-1.

158: The total amount contributed by Government was Rs. 2,373-2-6; subscriptions appear for the first time in

the returns for this year. The total amounts so collected during the year were:—

|                          |     |     |             |
|--------------------------|-----|-----|-------------|
| From European community, | ... | ... | Rs. 211 0 0 |
| „ Native ditto,          | ... | ... | „ 684 5 10  |

159. The total expenditure during the year amounted to Rs. 2,384-14-9.

160. *Patients.*—The total number of patients relieved during the year 1860, was 5,024; which shews a decrease of 1,065 cases on the results of the preceding year. This decrease is chiefly attributable to the insufficient accommodation of the buildings temporarily occupied for the purpose of the Institution.

161. The original Dispensary buildings having been included within the Military entrenchments, a long correspondence took place between the Department Public Works and the Military authorities, which, however, has as yet been ineffectual in obtaining the restoration of the building.

162. *Surgical Operations.*—During the year 1860, 14 major operations were performed, all of which were successful. Minor operations to the number of 312 were also performed within the same period.

The results for 1859 were—

|                   |     |     |     |     |     |
|-------------------|-----|-----|-----|-----|-----|
| Major operations, | ... | ... | ... | ... | 2   |
| Minor ditto,      | ... | ... | ... | ... | 302 |

163. *Vaccine Operations.*—These are not satisfactory, although the total number of vaccinations performed has increased from 160 in the previous year, to 374 in the year under review. The relative proportion of successful, to unsuccessful and doubtful cases, is not only exceedingly low, but also much lower than that of last year as shewn below.

|           | Successful. | Unsuccessful. | Doubtful. | Total. |
|-----------|-------------|---------------|-----------|--------|
| 1859, ... | 101         | 16            | 43        | 160    |
| 1860, ... | 68          | 197           | 109       | 374    |



This is probably due to a deterioration in the quality of the lymph. A fresh supply however can always be obtained from Doctor Pearson, Vaccine Superintendent of Kumaon and Rohilkund.

### JOUNPORE DISTRICT.

164. *Accounts*.—In this Dispensary also subscriptions appear for the first time in the year under review.

The amount subscribed was :—

|                            |     |     |             |
|----------------------------|-----|-----|-------------|
| By the European community, | ... | ... | Rs. 100 0 0 |
| „ Native ditto,            | ... | ... | „ 609 2 4   |
| Total,                     |     |     | Rs. 709 2 4 |

The Government contribution amounts to Rs. 682-10-5, to which sum therefore the local subscriptions bear a very fair proportion.

165. His Honor remarks with pleasure the interest taken in this charity by the inhabitants of Jounpore. The total expenditure during the year amounted to Rs. 1,112-3-3. There was a balance in hand on the 31st December of Rs. 279-9-6.

166. *Patients*.—There has been a slight increase in the number of patients treated during the year, as will be seen on comparison with the results of 1859.

|           | In-door. | Out-door. | Total.  |
|-----------|----------|-----------|---------|
| 1859,     | ... 138  | 2,598     | 2,736   |
| 1860,     | ... 122  | 2,922     | 3,044   |
| Increase, |          |           | ... 308 |

167. *Surgical Operations*.—These have not been classified into major and minor operations. In all, 160 have been performed, of which 128 were successful and 32 were unsuccessful.

The results for the preceding year were :—

|                            |
|----------------------------|
| 106 Successful operations. |
| 45 Unsuccessful ditto.     |

168. *Vaccine*.—The vaccine operations have increased from 233 in 1859, to 604 in 1860.

|           | Successful. | Unsuccessful. | Doubtful. | Total. |
|-----------|-------------|---------------|-----------|--------|
| 1859, ... | 149         | 57            | 27        | 233    |
| 1860, ... | 387         | 149           | 68        | 604    |

169. His Honor the Lieutenant-Governor remarked in G. O. No. 1,103 A, dated 14th May, 1861, that the Institution had been well managed by Doctor Fawcens.

### MIRZAPORE DISTRICT.

170. *Accounts*.—Rs. 4,606-11-6½ were expended during the year.

171. The sum originally granted by Government for this Institution was Rs. 200 per mensem. The sum drawn under this head during the year amounts to Rs. 3,140-9-2. On a reference to the returns for the first half of 1860, the difference above noted was shown to have occurred as follows:—

|                                                                                                             |     |     |     |         |
|-------------------------------------------------------------------------------------------------------------|-----|-----|-----|---------|
| Increase of Rs. 50 per mensem to salary of Sub-Assistant Surgeon, consequent on his promotion to 2nd grade, | ... | ... | ... | Rs. 600 |
| Pay of vaccinator @ Rs. 10,                                                                                 | ... | ... | ... | „ 120   |
| Increase of pay to 2 apprentices @ 1,                                                                       | ... | ... | ... | „ 24    |

Subscriptions have increased during this year, as will be seen from the following comparison:—

|           | 1859.   | 1860.   |
|-----------|---------|---------|
| European, | 334 0 0 | 74 0 0  |
| Native,   | 287 0 0 | 614 0 0 |

Showing a total increase on the year of Rs. 67.

172. The Municipal Funds have contributed a donation of Rs. 2,689-6-8 to the resources of the Institution.

173. There was a balance on the 31st December, of Rs. 134-13-8½.

174. *Patients*.—A large increase of patients is observable this year, viz. :—

|           |                           |        |
|-----------|---------------------------|--------|
| 1859, ... | Total number of patients, | 14,231 |
| 1860, ... | Ditto,                    | 15,366 |

---

|                     |       |
|---------------------|-------|
| Total increase, ... | 1,135 |
|---------------------|-------|

---

|                                       | Successful. | Unsuccessful. |
|---------------------------------------|-------------|---------------|
| <i>Surgical Operations</i> , { Major, | 4           | 1             |
| { Minor,                              | 286         | 13            |
|                                       | <hr/> 290   | <hr/> 14      |

amounting in all to 304 operations performed during 1860. The total number of operations performed in the previous year amounted to 301.

175. *Vaccine*.—The number of vaccinations has decreased this year.

|           | Successful. | Unsuccessful. | Doubtful. | Total. |
|-----------|-------------|---------------|-----------|--------|
| 1859, ... | 159         | 62            | 5         | 226    |
| 1860, ... | 114         | 16            | 9         | 139    |

176. His Honor the Lieutenant-Governor remarked on his visit to this Dispensary, that he found it well ordered in every respect.

#### GHAZEETPORE DISTRICT.

177. *Accounts*.—The total expenditure during the year was Rs. 3,067-10-4. The sum drawn as Government allowance amounts to Rs. 2,497-12-11. The subscriptions collected during the year were :—

|         |                                |           |          |         |
|---------|--------------------------------|-----------|----------|---------|
| 1860... | { From European community, ... | 406       | 6        | 0       |
|         | { From Native ditto, ...       | 177       | 8        | 0       |
|         |                                | <hr/> 583 | <hr/> 14 | <hr/> 0 |
|         | Total, ...                     | 583       | 14       | 0       |

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178. This is a decided decrease from the subscriptions collected during the previous year, which were as follows :—

|            |                                |     |    |    |
|------------|--------------------------------|-----|----|----|
| 1859...    | { From European community, ... | 555 | 10 | 0  |
|            | { From Native ditto, ...       | 153 | 9  | 10 |
| Total, ... |                                | 709 | 3  | 10 |

There was a balance in hand on 31st December of Rs. 259-12-10 $\frac{1}{4}$ .

179. *Patients*.—The number of patients relieved has also decreased this year.

|       |     | Out-door. | In-door. | Total. |
|-------|-----|-----------|----------|--------|
| 1859, | ... | 6,014     | 243      | 6,257  |
| 1860, | ... | 5,412     | 164      | 5,576  |

Decrease on year, ... 681.

180. This decrease is probably attributable, as stated by the Commissioner in the half-yearly Return, to the culpable carelessness and incapacity of the Sub-Assistant Surgeon. Doctor Garden, whose opinion of the Sub-Assistant Surgeon was less unfavorable, stated that former returns of patients were frequently swelled by entries of parties, chiefly Mahomedans, who obtained medicines for sick relatives, of whose symptoms, however, they could give no satisfactory account.

181. The Commissioner, however, was strongly impressed with the unsuitability of this officer for his post. His Honor concurring in this view, directed that extracts from the correspondence should be forwarded to the Principal Inspector General of Hospitals, with a request that he would take steps for the removal of the Sub-Assistant Surgeon to a post where he could be under closer control than could well be enforced at a Dispensary, and that he would supply another man.

182. *Surgical Operations*.—There were 10 in number, of which 8 were successful, and 2 unsuccessful.

183. The number of operations performed in 1859 was 13.

184. *Vaccine*.—The results under this head are not encouraging. There is a decrease on the year of 154.

|           | Successful. | Unsuccessful. | Doubtful.     | Total. |
|-----------|-------------|---------------|---------------|--------|
| 1859, ... | 190         | 230           | 34            | 454    |
| 1860, ... | 138         | 135           | 27            | 300    |
|           |             |               |               | <hr/>  |
|           |             |               | Decrease, ... | 154    |

### BENARES DISTRICT.

185. *Native Hospital Accounts*.—The total sum expended on this Hospital, together with its three Branch Dispensaries, during the year 1860, was Rs. 7,063-7 1, or Rs. 376-6-10, more than the expenditure of 1859.

186. The amount contributed by Government was Rs. 4,217-14-10 ; no Native subscriptions whatever have been received on behalf of these charities. The European community contributed the sum of Rs. 1,200. From the Nuzzool Fund a donation of Rs. 842 was made to this Institution. There was a floating balance in hand, on the 31st December, of Rs. 983-10-7, and an invested capital of Rs. 24,735.

187. *Patients*.—There has been a very large increase in the number of patients relieved this year in the Benares Dispensaries.

188. The number of patients of all kinds relieved during 1859, was 30,792, and in 1860, 36,501. This number is exclusive of 4,388 patients treated at the Chundowlee Branch Dispensary. Including the Bheloopoor Dispensary, there has been a total increase in the number of out-patients during the year of 12,059.

189. His Honor considered this fact to be good evidence of the high estimation in which the Dispensaries and Branches under Doctor Naismith's very able management are held by the community. On the returns for the first year a question arose as to the actual amount contributed by Government to this Institution. It will be useful for future reference to enter the explanation given by Doctor Naismith.

190. *Surgical Operations*.—These were more numerous than during the previous year, thus —

|           | Successful. | Unsuccessful.   | Total. |
|-----------|-------------|-----------------|--------|
| 1859, ... | 3,520       | 1               | 3,521  |
| 1860, ... | 4,358       | 1               | 4,359  |
|           |             |                 | <hr/>  |
|           |             | Difference, ... | 838    |
|           |             |                 | <hr/>  |

191. *Vaccine*.—The number of vaccinations performed is less than the corresponding number in 1859.

|           | Successful. | Unsuccessful. | Doubtful.     | Total. |
|-----------|-------------|---------------|---------------|--------|
| 1859, ... | 328         | 221           | 55            | 604    |
| 1860, ... | 302         | 230           | 25            | 557    |
|           |             |               |               | <hr/>  |
|           |             |               | Decrease, ... | 47     |
|           |             |               |               | <hr/>  |

192. *Bheloopoor Dispensary Accounts*.—Under G. O. No. 1,292, dated 26th May, 1854, the appointment of a Sub-Assistant Surgeon was sanctioned, as long as the Rance of Vizianagram should keep up her subscription of Rs. 150 per mensem. The order above quoted was approved by the late Court of Directors, in their letter No. 79, dated 20th August 1856. The total expenditure during the year 1860, amounted to Rs. 3,247-15-6. The contribution of Government towards the support of this Institution was Rs. 1,296.

193. There are no Native subscriptions to this Dispensary, except that of the Rance. It is worthy of remark that, although these charities are widely useful, 57,163 patients having been relieved during the year, no native subscriptions, excepting that of the Rance of Vizianagram, have been received towards their support.

194. *Surgical Operations*.—Surgical operations to the number of 1,568 have been performed during the year; the number performed in 1859 was 918.

195. *Vaccine*.—The number of operations performed was 186, of which 93 were successful. In 1859, 109 were performed, of which 47 only were successful.

## GORUCKPORE DIVISION.

196. *Accounts*.—At the close of 1860 the accounts submitted show a balance in hand of Rs. 665-1-3. The amount raised by subscription during the year was Rs. 669, of which Rs. 329-8-0 only was contributed by the native portion of the community. This amount, though hardly bearing a fair proportion to the Government contribution of Rs. 208 per mensem, is yet Rs. 204 in excess of the sum thus raised in the course of 1859. The whole expenditure amounted to Rs. 2,838-2-3, of which Rs. 2,491-10-6 was contributed by Government, and Rs. 46-7-9 by the Local Funds.

197. *Patients*.—The number of patients treated during 1860 is 7,724, being 1,746 in excess of the number during the course of 1859.

198. *Operations*.—The accompanying table, extracted from Dr. Cayley's Report, shows the result of the Surgical operations performed during 1860.

|      | Minor Operations. |               |        | Important Operations. |               |        | Ratio per cent. of Important to Minor. | Ratio (per cent.) of successful to unsuccessful. |        |
|------|-------------------|---------------|--------|-----------------------|---------------|--------|----------------------------------------|--------------------------------------------------|--------|
|      | Successful.       | Unsuccessful. | Total. | Successful.           | Unsuccessful. | Total. |                                        | Important.                                       | Minor. |
| 1859 | 143               | 0             | 143    | 17                    | 4             | 21     | 14.6                                   | 23.5                                             | 0      |
| 1860 | 245               | 0             | 245    | 27                    | 2             | 29     | 11.8                                   | 7.7                                              | 0      |

199. *Vaccine*.—Vaccine operations during the period under report show a slightly more favorable result than in former years; 646 persons were vaccinated. In 425 cases, however, the vaccination was unsuccessful. The operations are still on too small a scale to be of much practical use towards protecting the population, generally, against the ravages of small-pox; still the result shown, as compared with the small establishment kept up for the purpose, is not unsatisfactory.

200. *Apprentices.*—There are two apprentices attached to the Dispensary on an allowance of Rs. 4; but Dr. Cayley is of opinion that the remuneration is insufficient to induce lads of any intelligence or education, either to enter as apprentices, or to continue long enough to acquire a fair professional knowledge of their duties. The Commissioner accordingly suggests that three grades be established on Rs. 4, 8, and 12.

## KUAMAON DIVISION.

### NYNEE TAL DISTRICT.

201. *Accounts.*—The Dispensary is supported by a monthly allowance of Rs. 20 from Government, and Rs. 20 from Local Funds; any expenditure, in excess of Rs. 480 per annum, must be met by private subscriptions, or paid from the Local Funds. No subscriptions appear in the account for the year under report. The total expenditure in 1860 amounted to Rs. 489-1-10.

202. *Patients.*—The number of patients treated in 1860 exceeds that of the preceding year by 583.

|       |     | In-door. | Out-door. | Total. |
|-------|-----|----------|-----------|--------|
| 1859, | ... | 70       | 1,236     | 1,309  |
| 1860, | ... | 70       | 1,819     | 1,889  |

203. *Surgical Operations.*—Only one Surgical operation was performed during the year.

204. *Vaccine.*—No vaccinator is attached to this Dispensary, nor does one appear necessary. During the cold weather there are but few residents, and the hot weather and rains are unfavorable to successful operations. The Native Doctor attached to the Dispensary, therefore, performs the few cases that are noticed in the returns. The comparative results of the Vaccine operations during 1859 and 1860 are appended.

|          | Successful. | Unsuccessful. | Doubtful. | Total. |
|----------|-------------|---------------|-----------|--------|
| 1859,... | 50          | 69            | 0         | 119    |
| 1860,... | 88          | 40            | 0         | 128    |



## ALMORAH DISTRICT.

205. *Accounts*.—The present Dispensary building, when first occupied as such on the 15th March 1849, was the property of the treasurer, Tota Ram Sah; it has been rented nominally at Rs. 20 per mensem, but Tota Ram and his heirs have most liberally each year remitted the rent. The accounts show a balance in hand, at the close of 1860, of Rs. 956-14-7. The monthly sanctioned allowance, under Government Order, dated 22nd March 1848, is Rs. 220; but in consequence of there being a Native Doctor only, on Rs. 60 per mensem, instead of a Sub-Assistant Surgeon on Rs. 100, as originally contemplated, there is a considerable monthly saving, which will be devoted to the early recognition of the Lohoghat Branch Dispensary.

206. The subscriptions received during the year amount to Rs. 340, of which sum Rs. 240 were contributed by natives. This sum does by no means bear a fair proportion to the Government amount of Rs. 2,640 per annum.

207. *Patients*.—There is an increase of 1,919 in the number of patients treated during 1860.

|                             |       | In-door. | Out-door. | Total. |     |
|-----------------------------|-------|----------|-----------|--------|-----|
| 1859,                       | ...   | 80       | 2,959     | 3,039  |     |
| 1860,                       | ...   | 86       | 4,872     | 4,958  |     |
|                             |       | Capital. | Minor.    | Total. |     |
| <i>Surgical Operations.</i> | 1859, | ...      | 22        | 406    | 428 |
|                             | 1860, | ...      | 16        | 454    | 470 |

All of which were successful.

208. *Vaccine*.—The Vaccine operations are not quite satisfactory. The Commissioner assigns as a reason the fact of the Almorah residents having gone to the neighbouring villages to have their children inoculated, when the small-pox broke out in the suburbs of the town in 1860.

209. *Petoragurh Branch Dispensary*.—This is the first time that separate returns have been given for this Branch.

No comparison consequently can be instituted of the results of 1860 with those of former years.

210. The total amount expended was Rs. 134-6-11; this sum was entirely defrayed by Government. 408 patients were relieved; 12 minor operations performed successfully; and 25 cases of vaccination, of which 23 were successful.

#### GURHWAL DISTRICT.

211. There is one main Dispensary at Sreenuggur, and there are 6 Branches as follows:—1. Okeeneth, 2. Joseenuth, 3. Chunolee, 4. Mhelchowree, 5. Kurupryag, 6. Bikyah Kisyn.

212. The history and sources from which these Dispensaries are supported are detailed in the Assistant Secretary's Note on Dispensaries for 1859. It is sufficient to say here, that they are supported entirely from the Sudda Burt Funds, and were established for the relief of pilgrims proceeding to the temples of Budrinath and Kedarnath.

213. *Patients.*—The number of patients depends, therefore, entirely on the number of pilgrims. Relief was afforded during the year under report to 6,827 patients, an increase of 1,635 over the number submitted in the return for 1859.

214. *Surgical Operations.*—A number of minor operations were performed by the Native Doctors in charge, all of which are reported to have been successful.

#### JUBBULPORE DIVISION.

##### SAUGOR DISTRICT.

215. *Accounts.*—The total expenditure during the year was Rs. 1,183-9-2, of which sum Government contributed Rs. 1,018-11-8.

216. The amount raised by subscriptions and donations was Rs. 1,059-10-2, of which sum Rs. 716-10-2 was contributed by European Officers. The contributions by natives, fell short by Rs. 61. Of the sum thus raised in

1859, at the close of the year, there was a floating balance in hand of Rs. 546-8-6, and an invested capital of Rs. 1,000.

217. *Patients*.—The number of patients in 1860, fell short by 937, of the number treated in 1859.

|       |     | In-door. | Out-door. | Total. |
|-------|-----|----------|-----------|--------|
| 1859, | ... | 185      | 3,065     | 3,250  |
| 1860, | ... | 147      | 2,166     | 2,313  |

This however is easily explained by the fact, that in 1859, a bad epidemic fever raged at Saugor. The Native Doctor too was very unpopular; he has since been replaced by an efficient successor.

218. *Surgical Operations*.—There were only 4 Surgical Operations in 1860, as compared with 3, in 1859.

219. *Vaccine*.—Vaccine operations have been more extensive, and more successful during 1860, as compared with 1859, as will be obvious on inspection of the appended Table.

|           | Successful. | Unsuccessful. | Doubtful. | Total. |
|-----------|-------------|---------------|-----------|--------|
| 1859, ... | 20          | 55            | 1         | 79     |
| 1860, ... | 321         | 145           | 0         | 466    |

220. At the close of the year, owing to the exertions of the Local Committee, and Dr. Rice, the Civil Surgeon, efforts were being made to establish small Branch Dispensaries in two of the most populous towns; in the interior of the district, under the charge of the Native Doctors attached to the Customs Establishment.

#### JUBBULPORE DISTRICT.

221. At the end of the year there were no funds in hand at the disposal of the Dispensary Committee. The amount of aid received from Government was Rs. 2,659-8-8, or slightly in excess of the sum received during 1859. The European subscriptions, during the year under report, increased to Rs. 321-15-6, as compared with Rs. 217-9-4 in 1859; while the Native subscriptions have fallen from Rs. 108-12-8 in 1859, to the merely nominal sum of Rs. 11-8-0

in 1860. On the arrival, however, of Captain Nembhard, the permanent Deputy Commissioner, measures were set on foot towards raising subscriptions from natives, which should bear a fairer proportion to the Government contribution.

The number of patients treated during 1860 was 7,773, or 143 less than the number treated during 1859. Though no reason has been assigned by the Civil Surgeon for this falling off, the comparative healthiness of 1860 may be assumed as the cause.

222. *Surgical Operations*.—Only the more important Surgical Operations have been entered in the returns; of these there were 30 in 1860, as compared with 24 in the previous year, all of which were successful.

223. *Vaccine*.—The Vaccine operations have been more numerous and more successful than the number shown in the returns for 1859, as will appear from an inspection of the appended table.

|           | Successful. | Unsuccessful. | Doubtful. | Total. |
|-----------|-------------|---------------|-----------|--------|
| 1859, ... | 198         | 497           | 223       | 810    |
| 1860, ... | 679         | 211           | 178       | 968    |

224. *Nursingpore Poor-house*.—Here, as in Jubbulpore and Saugor, the European subscriptions exceed those of the Native community; Rs. 740 were subscribed by the former in 1860, compared with Rs. 99-12-0 by the latter. The funds in hand at the close of the year amounted to Rs. 250-10-0.

225. *Patients*.—The total number of patients treated in 1860 was 586, an excess of 114 over the number shown in the returns for the previous year. No Vaccine operations were carried out.

226. This Institution receives Rs. 9 only per mensem from Government, as the pay of 1 dresser and sweeper.

227. *Hurda, Hoshungabad Accounts*.—On the representation of the Commissioner in this letter No. 255, dated 11th September 1860, that the inhabitants of Hurda had

contributed Rs. 1,200 towards the erection of a building, and that a subscription of Rs. 25 per mensem was guaranteed, application was made to the Government of India for sanction to the following Establishment:—

|                    |       |    |   |   |             |
|--------------------|-------|----|---|---|-------------|
| Native Doctor, ... | @ Rs. | 25 | 0 | 0 | per mensem. |
| Compounder, ...    | "     | 10 | 0 | 0 | "           |
| Dresser, ...       | "     | 7  | 0 | 0 | "           |
| Cook, ...          | "     | 4  | 0 | 0 | "           |
| Bheesty, ...       | "     | 4  | 0 | 0 | "           |
| Sweeper, ...       | "     | 4  | 0 | 0 | "           |
| Total Rs.          |       | 54 | 0 | 0 |             |

The required sanction was accorded by the Government of India, in G. O. No. 11,575, dated 16th November.

228. The Dispensary has been opened.

229. As the Jubbulpore Division is no longer under the jurisdiction of this Government, no further notice of the working of its several Dispensaries will appear in future Notes.

## JHANSIE DIVISION.

### JHANSIE DISTRICT.

230. This Dispensary was opened during the whole of 1860. The accounts show a floating balance in hand of Rs. 1,168-13-10. Rs. 1,002-7-2 were collected by subscription, of which sum Rs. 671 were contributed by the European residents. The total cost to Government was Rs. 864, a sum most disproportionate to the number of patients relieved, who amount only to 515, or 106 less than in 1859. This unsatisfactory result is attributed chiefly to the bad character of the Native Doctor in charge, who has since been removed. His successor is reported to be an efficient practitioner.

231. In the Half-yearly Returns the disproportionately large sum charged for bazaar medicines, as compared with the expenditure under this head in other Dispensaries, was prominently noticed. For example, Oraie relieved 4,669

patients, at a cost under the head of bazaar medicines, of Rs. 65-9-6, while Jhansie expended Rs. 450-1-3 in the treatment of 515 patients. These unsatisfactory results were attributed by His Honor to a want of proper supervision over his subordinates, on the part of the Assistant Surgeon, who appeared to show but little energy or interest in the management of the Dispensary.

232. *Vaccine*.—Vaccine operations were totally at a stand-still, no supply of lymph having been procured. His Honor trusted that Dr. Annesley would not in future neglect this important portion of his duties, but would strive to emulate in his smaller circle, the satisfactory results obtained by Dr. Currie at Agra. The management of this Dispensary during the year under notice, was considered generally unsatisfactory.

#### ORALE DISTRICT.

233. *Accounts*.—On the 31st December, there was a cash balance in hand, of Rs. 991-9-8. Rs. 260 were subscribed by European Officers, Rs. 1,303-5-7 by Natives, or Rs. 1,560-5-7, against Rs. 199-4-2, the sum collected in 1859. The Dispensary was opened on 15th December 1859, at first in a house rented in the town, until a suitable building could be erected. Subscriptions were collected, and a new building on a good site was erected at a cost of Rs. 500, and opened on the 1st June.

234. *Patients*.—130 in-door and 4,536 out-door patients were treated during the year. It was stated in the Report for the second half of 1860, that many patients applied for admission, but the expense of dieting, and the small amount of funds at the disposal of the Committee, were rightly kept in view, and a judicious caution was exercised in admitting as in-patients, only the more serious cases, which required careful treatment and constant watchfulness.

235. *Vaccine*.—Vaccine operations were unsuccessful. This is explained partially by the fact, that the Native

Doctor was inefficient, and inattentive to his duties. He has since been replaced by another person, and better results are looked for in the return for 1861.

236. His Honor considered that the Dispensary had been managed with great care and energy by Dr. Hatchell, and that the results contrasted in every respect most favourably with those exhibited in the Jhansie returns. Cholera prevailed in the district during the hot weather, but its ravages were considerably checked by a timely supply of medicines, distributed to the different Tehseel stations from the Dispensary stores.

237. *Accounts.*—The floating balance in hand at the end of the year amounted to Rs. 412-10-4. \* European, Rs. 139 4 0  
Native, „ 404 1 4 Rs. 543-5-4\* were raised by subscription; it was stated that the receipt under this head would have been considerably larger, but for an unfortunate private difference between the Assistant Surgeon, and an influential member of the resident community. The cause of these differences is now removed, and a new subscription has been set on foot, which is expected to yield steady income for the future.

238. *Patients.*—The number of patients treated was 705. The smallness of the number was attributed by Dr. Raddock to the unfavorable position of the Dispensary with regard to the district, as during the rains, owing to the rise in the Betwa, Jumna, and Rohan nuddee, Humeerpore becomes practically isolated, and the town itself supplies few patients.

239. *Vaccine.*—Of 37 operations, 18 were successful. Here as elsewhere, a strong prejudice prevails against vaccination, and it is found almost impossible to persuade parents to allow it to be performed on their children.

#### AJMERE DISPENSARY.

240. *Accounts.*—Rs. 2,202 were expended during the year, of which Rs. 1,886 were drawn as Government allowance. The allowance sanctioned by Government order No. 18,

dated 10th May, 1850, was Rs. 200 per mensem. The Committee therefore drew Rs. 514 less than they might have done, under the order cited. With reference to this, the Commissioner was informed in G. O. No. 804 A, dated 20th of April 1861, that the savings from the Government allowance might be formed into a fund for the future establishment of Branch Dispensaries. There was a slight increase of Rs. 25, under the head of subscriptions, which amounted in all to Rs. 316 during the year. The lukewarmness of the natives in the matter of subscription may, perhaps, be partly attributable to the unfortunate indiscretion of Meer Ushruf Khan, a Native Doctor, who, during the early part of the year under report, offended the prejudices of the high caste Hindoos, by dissecting a body in the Dispensary. The falling off in the Attendance Returns, noticed in the Report for the first half year, may perhaps also be ascribed to this cause. The Native Doctor was removed, and his successor, Elahce Buksh, is spoken of in high terms by Doctor Murray.

241. *Patients*.—The attendance Returns show a decrease of 459 patients, as compared with the number (5,277) treated during the previous year. This result is attributed by Doctor Murray to the general healthiness of the year, and the improvements in the sanitary arrangements of the city.

242. *Surgical Operations*.—Twelve capital operations were performed during the year, and 236 minor cases. In connection with this subject, Doctor Murray mentions a successful case of Lithotomy, in which the stone extracted, weighed 4 oz., 5 drachms, and measured  $6\frac{1}{4}$  inches in circumference.

243. *Vaccine*.—The Vaccine returns show a considerable improvement over the results of 1859, as will be manifest from the accompanying table:—

|            | Successful. | Unsuccessful. | Doubtful. | Total. |
|------------|-------------|---------------|-----------|--------|
| 1859, ...  | 4           | 135           | 0         | 139    |
| 1860, .... | 378         | 208           | 14        | 600    |



244. *Apprentices.*—Five apprentices were attached to the Institution during the year, of whom two proceeded to prosecute their studies at the Agra Medical School, and one left the Institution, having obtained employment elsewhere.

#### NYANUGGUR DISPENSARY.

245. This Dispensary was in operation during 4 months only, during which time it afforded relief to 792 patients. It was temporarily suspended by order of Government, owing to the indifference to its welfare, shown by the native community, in refusing to contribute towards its maintenance. The Commissioner, in his letter No. 7, dated 22nd January, 1861, reported that Rs. 160 per mensem had been promised by the European community at Beawur, and the Government servants attached to the Mhairwarrah Offices; and trusted that this contribution would be sufficient to induce His Honor to sanction the re-opening of the Institution, in consideration of its having been originally erected out of private funds. His Honor however bearing in mind that the town has a population of 12,000 inhabitants, and is the centre of a considerable trade, declined to accede to the request, until it could be shown that the community possessed the will, as they undoubtedly did the means, to subscribe towards the maintenance of an Institution, of the benefits derived from which, they are the sole recipients.

#### NIMAR DISTRICT.

##### KHUNDWA DISPENSARY.

246. *Accounts.*—The total expenditure on account of this Dispensary during the year, amounting to Rs. 764-9-3, was defrayed by Government. Nothing appears under the head of subscriptions in the accounts.

247. *Patients.*—The number of patients treated was 1,043, being an increase of 87 over the number shown in the returns for 1859.

248. *Vaccine.*—No separate returns for Khundwa were submitted. The operations in Nimar were not unsatis-

factory. There were in all 2,251 cases, of which number 1,033 were successful. His Honor remarked that in the Half-yearly Returns, there was nothing which required particular comment.

249. This Province having been recently removed from the jurisdiction of this Government, no returns from Nimar will appear in future Reports.

S. M. MOENS,

*Offg. Assistant Secretary to Government,*

*North-Western Provinces.*

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## No. 3.

CHARITABLE MEDICAL INSTITUTIONS IN  
BENARES.

*Letter No. 19 A, dated Benares, the 16th March, 1852, from E. A. READE, ESQ., Commissioner of the Benares Division; to W. MUIR, ESQ., Secretary to the Government, North-Western Provinces.*

SIR,—With reference to my letter No. 34, dated 21st May, 1850, on the subject of the Native Hospital, its Branch Dispensaries, and the Asylum for the blind, in the city of Benares, I trust it will be satisfactory to Government to receive an account of progress made in improved arrangements and extended usefulness.

2. The accompanying sketch (*vide appendix*) indicates the locality of the present Medical Institutions in the city of Benares and its environs, which are now prospering under Doctor T. Leckie's able and unwearied superintendence. To save reference to past correspondence I propose to give a brief notice of each.

3. THE CITY HOSPITAL.\*—This Institution was founded in A. D. 1787, by Mr. J.

*Daily average of Patients.*

New cases, ... 14·67

Old ditto, ... 19·47

34·14

Duncan, who granted a jagheer "for the purpose of Medical relief being afforded to the indigent and alien sick in the city of Benares." The

trustees, certain hukeems, were faithless, and the attention of the principal residents having been called to the subject in 1811, subscriptions were raised, and the Hospital established; Messrs. W. W. Bird, and R. M. Bird, being appointed Governors. Part of the money was laid out in the purchase of a residence for the Civil Surgeon, subject to a fixed rent of Rs. 60 per mensem, and the residue, Rs. 24,435,

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\* NOTE.—The particulars of this Institution are more fully given in the annexed Extracts from Mr. Reade's letter of 21st May, 1850.

was vested in Government Securities, at the disposal of a Committee, subsequently appointed by Government, of the

The Judge.  
The Magistrate.  
The Governor-General's  
Agent.  
The Supg. Surgeon.  
The Chaplain.  
The Civil Surgeon.  
A Native Gentleman.

Officers noted in the margin, with whom the Commissioner has been joined by recent orders. The Government responded to the call of the parties who commenced the movement, and an establishment was

sanctioned. The jagheer was subsequently resumed, but Mr. Duncan's pledge has been fully redeemed by the continuation of an annual payment, amounting to Rs. 3,081, in support of the Hospital and its Branch Dispensaries. On the 31st March 1850, the balance in the hands of the Civil Surgeon, who is ex-officio Secretary to the Committee, was Rs. 22-1-2. On 31st December last, it was Rs. 1,138-2-11.

The site of the Hospital, though not central, is, on other grounds, convenient. It would be a saving effected of Rs. 432 per annum, if the building was the property of the Committee; but it is not easy to obtain a good site, and still less an airy locality, in the city of Benares. The purchase of the present building, or the erection of a new Hospital would involve a large outlay, and as the Committee have not the means, it is a matter of necessity to adhere to the present arrangement.

THE CHOWK DISPENSARY is a branch of the former

*Daily average of Patients.*

|                |             |
|----------------|-------------|
| New cases, ... | 28-32       |
| Old ditto, ... | 11-75       |
|                | <hr/> 40-67 |

Institution, maintained by its funds.

Formerly it was established in the gateway of the present kotwalee; but the lease of a large and commodious house, (the old kotwalee,)

has been obtained by negociation, from the Rajah of Benares; and the Sub-Assistant Surgeon has thus been enabled to be in constant attendance at the Principal Dispensary.

THE OWSANGUNGE DISPENSARY is another branch of the same Institution, and has only recently been established. It is a much improved substitute for what was styled the "Rajghat Dispensary" in old statements, and which consisted of a Native Doctor, occasionally visiting the principal crossing of the Ganges, with medicines in his girdle. The position of Owsangunge Mohulla, to the north-east of the city, was in every respect preferable; and on the deserted site of an old Police station, a substantial building has been restored with the aid of Baboo Deonarayan Singh, whose residence is close by, and whose readiness to assist in public improvements has been more than once noticed. Flanking the main building, a row of shops has been erected, the rent of which will suffice to meet the cost of repairs. This Dispensary promises to be the most popular of any in Benares.

THE SECCOLE DISPENSARY is also another branch. It is close to the residence of the Civil Surgeon, and furnishes relief to patients who there consult the Medical Officer, and to those who dwell in the outskirts of the city.

THE BEYLOPOOR DISPENSARY is maintained by the benevolence of the Maha Ranee of Vizianagram, who, since her husband's death in 1845, has made Benares her resting place. This Institution, much required amidst the dense population of this part of Benares, has become very popular, and a considerable portion of its funds is also devoted to eleemosynary relief of persons of all classes. The Maha Ranee intends to invest a sum sufficient for its permanent maintenance, with the consent of her son, the present Rajah. The difficulty is that her design

*Daily average of Patients.*

|            |     |          |
|------------|-----|----------|
| New cases, | ... | 32       |
| Old ditto, | ... | 21       |
|            |     | <hr/> 53 |

*Daily average of Patients.*

|            |     |             |
|------------|-----|-------------|
| New cases, | ... | 14.28       |
| Old ditto, | ... | 29.98       |
|            |     | <hr/> 44.26 |

*Daily average of Patients.*

|            |     |             |
|------------|-----|-------------|
| New cases, | ... | 14.12       |
| Old ditto, | ... | 34.03       |
|            |     | <hr/> 48.20 |

is to have an Institution for religious, charitable, and medical purposes in conjunction. But the separation of the Monastery, the Dispensary, and the Alms-house has been suggested, and will, I trust, be acceded to.

RAJA KALEE SHUNKER'S ASYLUM\* was the subject of a report of date 14th February 1851, No. 12, subsequent to that mentioned in the first paragraph.

Average number of inmates 1851 ... 81.

The Institution was endowed by Raja Kalee Shunker Ghosaul in 1825, who gave the princely sum of 48,000 rupees, invested in Government securities; the interest of which, with the rent of a house in Secrole, also given by the Raja, and a donation of 1,200 rupees from the Government, maintains the Institution. It had not, however, a habitation of its own; and to remedy this defect, the Government at first allowed the use of the premises of the old Mint. Afterwards this site was changed for a garden belonging to Narayan Rao Tookeea, about two beegahs in extent, subject to the enormous rent of 360 rupees per annum. The reason advanced in support of this remove, (the comparative proximity to the City Hospital,) experience has shown, should have been cited against it; for certainly during several years the Hospital has been improperly aided at the expense of the Asylum; and though it may be right to fix a Dispensary in the heart of a City, the locality of an institution which combines eleemosynary relief with sanitary treatment, is better outside. Accordingly, a site has been selected, well raised, of sufficient extent, and near the Civil Surgeon's residence. The land has been obtained on a permanent lease, and at a fair rent. The requisite number of Alms-houses, and a separate ward for female patients, have been completed with the aid of subscriptions, and savings effected by Doctor Leckie's improved system of

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\*The annexed extracts from Mr. Reade's letters of 21st May 1850, and 14th February 1851, give further particulars of this Institution.

management. On the 31st March 1850, the balance against the Institution was Rupees 132-12-1. On the 31st December last, the surplus was Rupees 1,079-1-10. Major Kittoe has not yet completed his part of the undertaking, the construction of a handsome entrance to the enclosure; but the work is far advanced, and when this is completed, the new Asylum will be worthy of the commendatory notice bestowed by the Government on this Institution, which it has designated "a noble charity." I should not close this account without stating, that the well in the centre of the new Asylum, is the gift of Baboo Deonarayan Sing. With reference to his liberality in this, and in the case of the Owsangunge Dispensary, I recommend his being appointed a Member of the Committee, both of the City Hospital and of Raja Kalce Shunker's Asylum; his nomination having been unanimously approved by both Committees.

The favourable attention of Government is also requested to the accompanying address from Baboo Deves Doyal Sing, zemindar of Burthana, whose proposition has, for some time past, been under the consideration of Doctor Leckie and myself. It would have been brought before Government before this, but the requisite agency was not available, and we have been anxious to assign the experiment to trustworthy hands.

Baboo Deves Doyal Sing's original design was to establish both a School and a Dispensary on his estate. But, for a reason which will be stated hereafter, the former has been reserved.

His proposition is to place at the disposal of the Civil Surgeon, in the Collectorate Treasury, the sum of 25 rupees per mensem, or 300 rupees annually, for the term of five years, for the purpose of maintaining a Dispensary and establishment near to Chowbey poor, on the Ghazec-poor road, about ten miles distant from Benares. He provides a house, sufficient for the establishment and pa-

tients attending, and adds 50 rupees as a fee to the Medical Officer for an occasional visit.

In December last, I visited the spot in company with Surgeon James Stokes, M. D.

The proposed Dispensary is on a raised platform about 15 feet high, and about 300 feet square; having an open court in front of three apartments which were formerly the zemindar's cutcherry. Behind, a passage leads to a range of apartments sufficient to accommodate two or three families. On either side of the ascent to the platform, and at its base, two long rooms had been prepared for the proposed school; but Doctor Stokes judiciously objected to the risks of contact with persons subject to infectious diseases, and, in consequence, these rooms are to give shelter to patients who may come from a distance.

Relief is to be administered gratuitously to all who may come to the Dispensary in person, but those who require the Native Doctor to visit them and their families, must settle the remuneration with him.

The establishment is to be wholly under the orders of the Civil Surgeon, who will arrange for the distribution of their monthly pay, the whole amount of which will be deposited in the Treasury before it becomes due.

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                    |    |   |   |                |   |   |   |                 |  |  |  |                    |   |   |   |  |       |  |  |        |    |   |   |                                                                                        |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|----|---|---|----------------|---|---|---|-----------------|--|--|--|--------------------|---|---|---|--|-------|--|--|--------|----|---|---|----------------------------------------------------------------------------------------|
| <p>The cost has been estimated as shown in the margin,</p> <table border="0"> <tr> <td>Native Doctor, ...</td> <td>14</td> <td>0</td> <td>0</td> </tr> <tr> <td>Assistant, ...</td> <td>4</td> <td>0</td> <td>0</td> </tr> <tr> <td>Bazar Medicines</td> <td></td> <td></td> <td></td> </tr> <tr> <td>and Contingencies,</td> <td>7</td> <td>0</td> <td>0</td> </tr> <tr> <td></td> <td colspan="3"><hr/></td> </tr> <tr> <td>Total,</td> <td>25</td> <td>0</td> <td>0</td> </tr> </table> | Native Doctor, ... | 14 | 0 | 0 | Assistant, ... | 4 | 0 | 0 | Bazar Medicines |  |  |  | and Contingencies, | 7 | 0 | 0 |  | <hr/> |  |  | Total, | 25 | 0 | 0 | <p>but this can be subjected to modification hereafter, as may be found necessary.</p> |
| Native Doctor, ...                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 14                 | 0  | 0 |   |                |   |   |   |                 |  |  |  |                    |   |   |   |  |       |  |  |        |    |   |   |                                                                                        |
| Assistant, ...                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 4                  | 0  | 0 |   |                |   |   |   |                 |  |  |  |                    |   |   |   |  |       |  |  |        |    |   |   |                                                                                        |
| Bazar Medicines                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                    |    |   |   |                |   |   |   |                 |  |  |  |                    |   |   |   |  |       |  |  |        |    |   |   |                                                                                        |
| and Contingencies,                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 7                  | 0  | 0 |   |                |   |   |   |                 |  |  |  |                    |   |   |   |  |       |  |  |        |    |   |   |                                                                                        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <hr/>              |    |   |   |                |   |   |   |                 |  |  |  |                    |   |   |   |  |       |  |  |        |    |   |   |                                                                                        |
| Total,                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 25                 | 0  | 0 |   |                |   |   |   |                 |  |  |  |                    |   |   |   |  |       |  |  |        |    |   |   |                                                                                        |

The Native Doctor will be expected to keep a diary and accounts, and to submit, periodically, Statements for the Institution, as is now done for others supported at the expense of Government. The Dispensary being only a mile distant from the thannah of Chowbeypoor, there will be no difficulty in maintaining a ready communication with the Civil Surgeon at Benares, through the channel of that office.



The approval of Government is requested to these arrangements, and to the supply of European medicines and medical instruments at the discretion of the Civil Surgeon and Superintending Surgeon.

In the term of five years, a sufficient knowledge of the result of the experiment will be obtained; and provision is made, it will be observed, in the Baboo's address, for a special report being submitted to the Government on the subject towards the close of this term. If it should then be thought desirable, he will not object to the continuance of his support for another quinquennial term, with the same provision for the subject being again brought under the special consideration of Government. His object is to introduce, amongst his tenantry and countrymen, a system of medical practice superior to that which consists in the exercise of some knowledge of simples, and belief in the efficacy of charms. He is not without hope that, in time, the people at large will learn to appreciate the change, and that medical practitioners, duly qualified and licensed, may find it possible to earn a livelihood without the aid now requisite in this and other parts of the country.

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II.—*Extract from letter No. 34, dated 21st May 1850, addressed by E. A. READE, ESQ., Commissioner of Benares, to J. THORNTON, ESQ., Secretary to Government, N. W. P.*

The City Hospital of Benares and its Branch Dispensaries are modifications of a medical Institution which existed before the conquest of the Province. In 1787, Mr. Duncan granted a jageer yielding 2,400 per annum as a remuneration for relief "to indigent and alien sick in the City of Benares." The trustees, certain hukeems, appropriated the proceeds to their own benefit, fulfilling in no respect whatever the conditions on which the jagheer was held. In 1811, the principal residents at Benares, unaware it seems of this provision, but having had their attention roused to the want of medicinal aid in a large

city, met together, and subscribed largely to the endowment of a City Hospital. The Go-

\* Chief Secretary to Government, 19th April, 1811.

vernment approved and sanctioned\* an establishment at a cost of 150 Siceea rupees, or 156-12 Company's

rupees per mensem. The managers in 1813 brought to notice the misconduct of the native trustees abovementioned, who had also refused to give any aid whatever to the new Institution, and, in consequence, under the orders of

\* Chief Secretary to Government, 8th July 1814, No. 182.

Government,\* a moiety of the Jagheer was resumed, and made over to the latter. The title of the

† Secretary to Government to Sudder Board of Revenue, No. 51, 17th June 1837.

whole Jagheer was subsequently formally tried, and an order of resumption issued; but the Govern-

ment directed the boon previously granted to be continued† in the shape of a payment from the Treasury of 1,200 Rupees annually.

The donations and subscriptions of individuals were partly invested in Government Se-

|                                        | Rs.          |
|----------------------------------------|--------------|
| 1 Note, second 5 per cent. loan, ...   | 3,600        |
| 7 Notes, third 4 per cent. loan, ...   | 18,000       |
| 1 Note, 5 per cent. transfer loan, ... | 2,835        |
|                                        | <hr/> 24,435 |

curities, as shown in the margin, which are in the custody of the Government Agent of Calcutta; and partly in the establishment of a Branch Dispensary, and purchase of a house adjoining to it in Secrole,

which has since continued to be the residence of the Civil Surgeon, and for which he pays a fixed rent of 60 Rs. per mensem. The City Hospital, which has also a Dispensary annexed to it, has besides a Branch Dispensary at the kotwallee or the Chowk, and another at Raj Ghât, and the expenses of all these Institutions are compressed into one account.

The following may be considered an approximate estimate of income and expenditure of this Institution, and its branches:

| Income.                                                                                                                                                                           | Expenditure.                                                                                                                                                                    |                                                                                                                            |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|
| Annual interest<br>on Rs. 24,436, 1,034 2 0<br>Government do-<br>nation, ... 1,200 0 0<br>Establishment<br>sanctioned; ... 1,881 0 0<br>Rent of House, 720 0 0<br><hr/> 4,885 2 0 | Surgeon's salary, 1,600 0 0<br>Establishment, 981 0 0<br>Rent of Premises, 540 0 0<br>Dieting, ... 840 0 0<br>Medicines, ... 528 0 0<br>Repairs, ... 160 0 0<br><hr/> 4,842 0 0 | Stated average<br>number of in-<br>mates—14.<br>Of average<br>number of per-<br>sons relieved,<br>—no authentic<br>record. |

On 31st March last, the balance in the hands of the Secretary was Rs. 22-1-2.

*Further Extracts from the same letter.*

THE ASYLUM FOR THE DESTITUTE, especially the blind, was founded in 1825 by Raja Kaleo Shunker Ghosaul, who made over 48,000 rupees to Government on the guarantee that interest at 5 per cent. annually should be paid thereon, in perpetuity, for the maintenance of the institution, in support of which the Rajah subsequently gave a house in Seerole, valued @ Rs. 10,000.

The Government assented, and in approbation of this act of munificence undertook the expense of accommodation at a cost of Rs. 160 per mensem, and of a fixed establishment amounting to Sicea Rs. 90 (or Company's Rs. 94-0-0) per mensem. Subsequently, a change of site having effected a saving, the Government, instead of Rs. 160, guaranteed Rs. 100 per mensem, partly as rent, and partly as a donation.

The management of the trust was committed to the Officers noted in the margin, for whose guidance laws were framed, and, after revision, finally sanctioned in 1836. The Superintending Surgeon also was added to the number of the Committee.

\* The Founder Kaleo Shunker Ghosaul.  
 The Agent to the Governor General.  
 The Judge.  
 The Magistrate.  
 The Chaplain.  
 The Civil Surgeon, who is also Secretary.

The following may be considered an approximate average of income and expenditure for

the past three years;—the stated average number of inmates being 120.

| <i>Income.</i>                    |       |     | <i>Expenditure.</i> |       |     |
|-----------------------------------|-------|-----|---------------------|-------|-----|
| Interest on 48,000, @ 5 per cent, | 2,400 | 0 0 | Dieting,            | 3,600 | 0 0 |
| Ditto on 2,000, @ 4 " "           | 80    | 0 0 | Establishment,      | 1,128 | 9 0 |
| Ditto on 3,700, @ 5 " "           | 185   | 0 0 | Medicines,          | 120   | 0 0 |
| Ditto on 2,000, @ 5 " "           | 100   | 0 0 | Rent,               | 360   | 0 0 |
| Allowance for rent and donation,  | 1,200 | 0 0 | Clothing,           | 480   | 0 0 |
| Establishment, ...                | 1,128 | 9 0 |                     |       |     |
|                                   | 5,093 | 9 0 |                     | 5,683 | 9 0 |

The suggestions I would offer regarding this institution are :

1st. That the popular name of the Institution be made official, and that in future it be designated **RAJA KALEE SHUNKER'S ASYLUM.**

2nd. That the officers who compose the Committee be informed that the Government expect the duty of supervision to be discharged in future. With the exception of the Judge and Civil Surgeon, no one of the other officers at present here, have hitherto been aware that they are ex-officio Members of Committee.

3rd. That an additional Bye-law be passed, by which three members of Committee can form a quorum for transaction of business.

4th. That there be kept in the institution a book for registry of visits by members of Committee, collectively or independently, and other records noted in the margin.

Book of Resolutions and Proceedings of Committee.

Books of Letters sent.

Monthly Ledger.

Portfolio of Letters received.

Portfolio of Vouchers, Bills and Receipts.

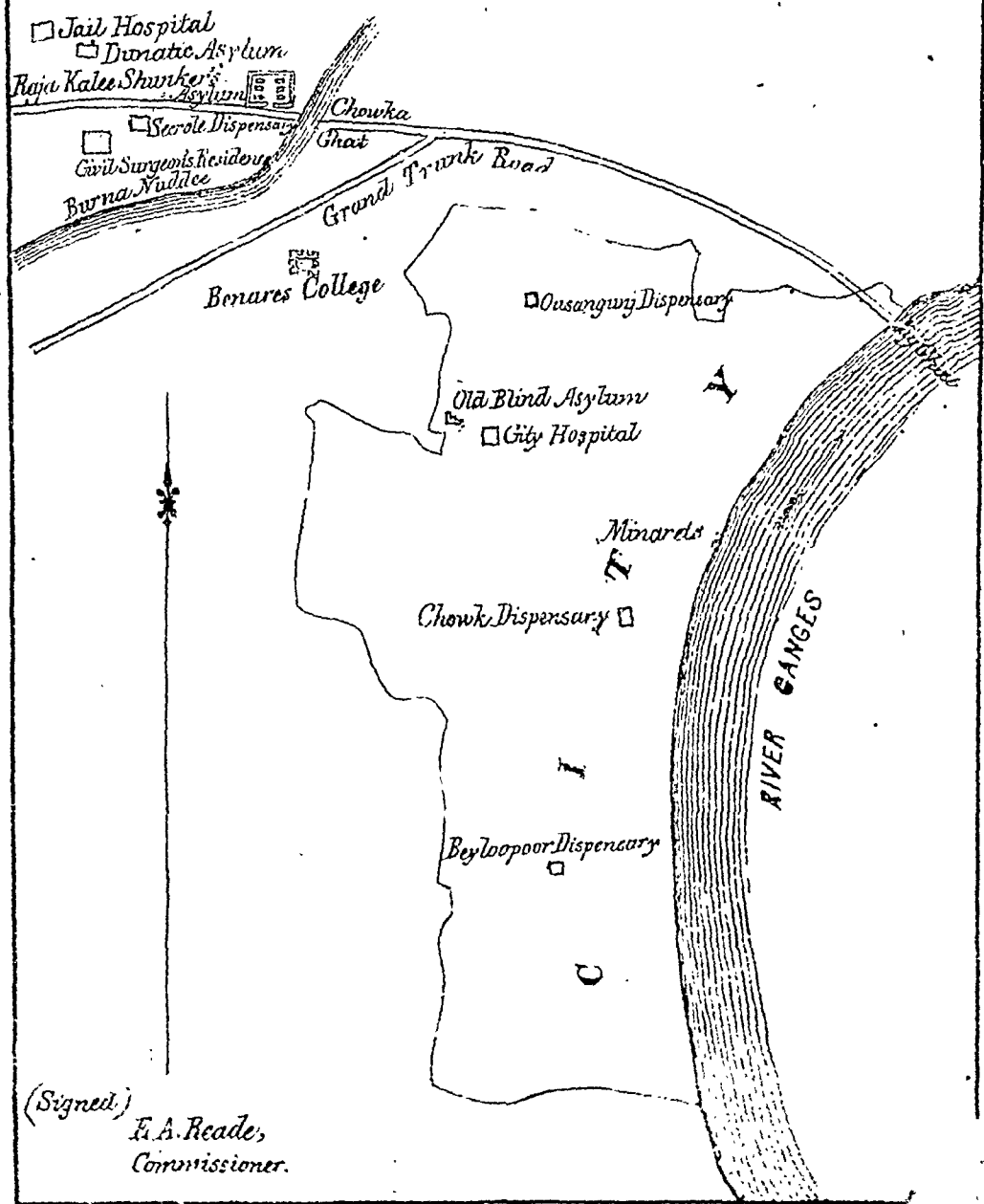
5th. That the accounts be in future countersigned monthly.

6th. That the Annual Report to Government shall, in future, with other details, supply a Memorandum of inspections compiled from the visiting book, and certify the state of accounts and records of the Institution. The reports to be in the names of the committee.



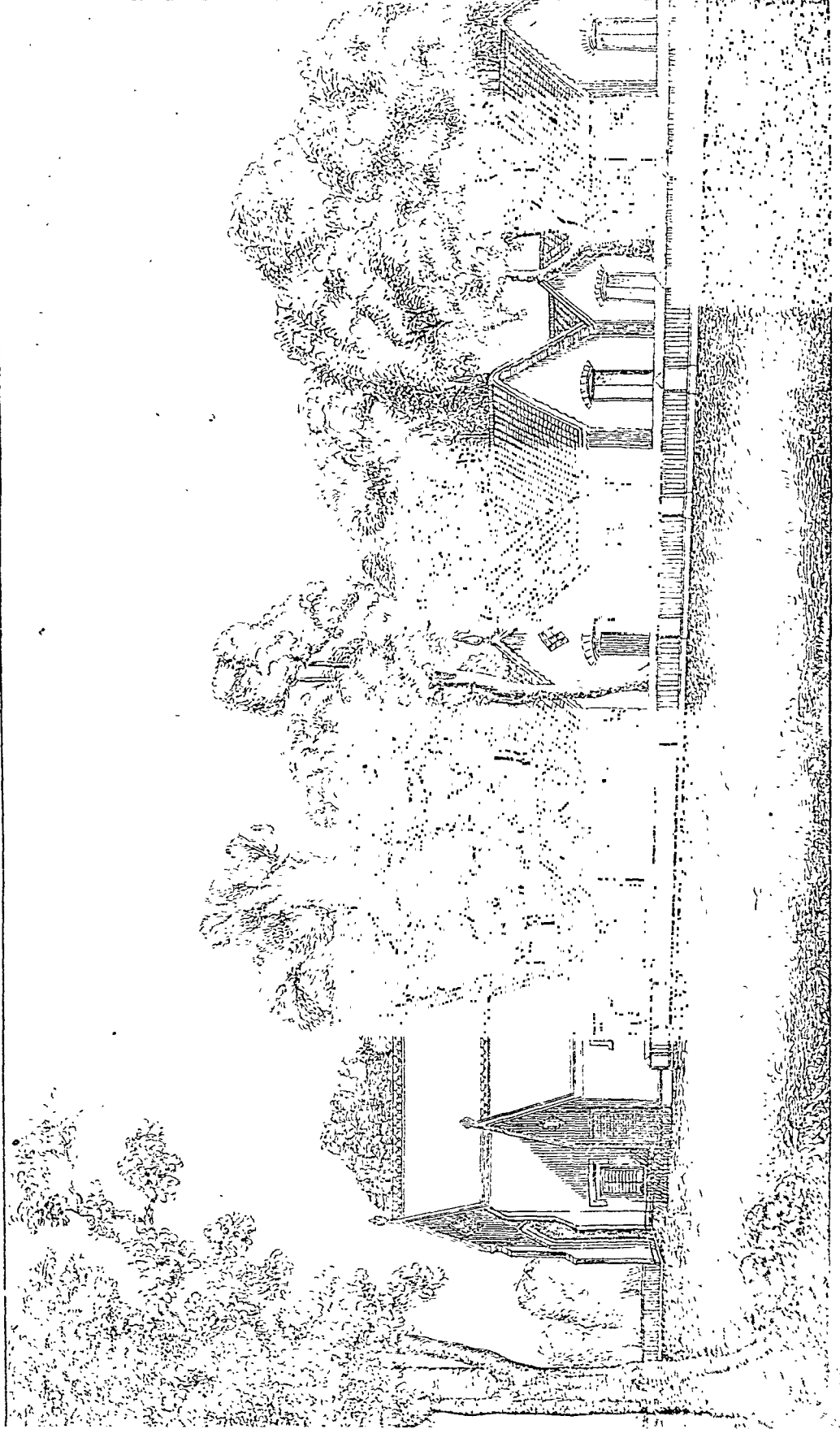
# Plan of the CITY AND SUBURBS of BENARES

*Shewing the Position of the*  
**MEDICAL INSTITUTIONS.**



(Signed)  
F. A. Reade,  
Commissioner.





Raja Kalee Shunker's Asylum.



**No. 4.****TOPOGRAPHY AND DISEASES OF FUTTEHPORE  
SEEKREE.**

*REPORT, dated 1st February 1852, on the Sickness at  
Futtehpore Seekree, in the Agra district, during  
the years 1849, 1850 and 1851.*

By JOHN MURRAY, Esq., M. D., *Civil Surgeon, Agra.*

FUTTEHPORE SEEKREE was the favorite residence of the Emperor Akbar, when Europeans first visited the Great Mogul in 1569 A. D. It is twenty miles west of Agra. The ancient town is on the crest of a rocky ridge. It is now a waste of ruined palaces surrounding the chaste tomb and magnificent gateway of Shaik Selim Chistic. The present town is on the south side of the base of the hill, surrounded by an ancient high stone wall. There was formerly a lake on the north side of the hill. It was formed by a stone bund extending in a northerly direction, above two miles from the base of the hill to Russoolpore. It was fed by a canal from the Bangungah river. For ages the bund had been broken, and the communication with the river closed. The ridge of hills runs from Futtehpore in a straight line south-west to Serowlee, a distance of eight miles. There is a narrow gap in the range midway, *viz.* at Munda Mirza Khan. The line of hills continues in a more detached form for eight miles towards Agra, in a north-easterly direction. It consists of stratified red sandstone, dipping to the south-east at an angle of about  $20^{\circ}$  and terminating abruptly on the north-west face. There are similar ridges at intervals of two to ten miles, extending to Delhi in a northerly, and by Gwalior to the Vindyan range in a southerly direction. The intervening land is very level. It looks like a lake from which the hills rise like islands.

The soil at Futtchpore Seekree is alluvial, with a large proportion of sand, and occasional strata of kunkur. It is much impregnated with salt. The water in some places is so brackish, that it was formerly used for the manufacture of salt, by the simple process of evaporation in shallow pans. This process is extensively carried on in Bhurtpore and the neighbouring territories. The surface of the country is about 600 feet above the level of the sea. The slope in the line of drainage is very slight. The bed of the Bangungah river is a dry waste of barren sand, about a mile broad, over which, after heavy falls of rain, in the rainy season, the river used to flow. The river comes from the west to Serowlee, where it took a turn to the south, round the spur of the hill; and from this point it was called the Utungan, but its name changes to Gumamuree or Gumbeer previous to its junction with the Kharee Nuddee. It ultimately joins the Jumna about thirty miles below Agra.

The dryness of the soil, and the saltiness of the water, in the district of Futtchpore Seekree, cause much of the land to be waste, and render irrigation precarious. When the rains are scanty, scarcity and distress follow. To remedy this, Mr. C. C. Jackson, Magistrate and Collector of Agra, repaired the ancient bund at Futtchpore in 1848-49, and dug a canal, ten feet broad, and from 6 to 8 feet deep, and three miles long, at the north side of the spur of the hill at Serowlee, communicating with the river at the bend. A branch from this canal, conducted a part of the water to the south side of the range near Dabur. A stone revetment was built at the entrance of the canal, but the flood of water undermined and carried it away, and gradually widened the course of the stream. In 1849, the country above the bund on the north side of the range was flooded. A large portion of the water also passed through by the gap at Mundee Mirza Khan, and flooded the vicinity of Fut-

tehpore Seekree, extending eastward to the Kharee Nuddee. In this year there was unusual sickness in the villages round the lake, and in Futtehpore and its vicinity.

The rain in 1859 was abundant. It continued till October, with occasional showers in the cold season. It fell in *heavy showers*, which alone causes the water to flow in the river. The current cut away the northern bank of the canal, and widened the passage, till the greater part of the river passed by the new channel. The country in the vicinity of the bund was flooded; but the main body of the water passed through the gap at the Mundee, and submerged the country under Futtehpore Seekree, and extended in an easterly direction by Undra and Dura to Deoretha. In some places the water lodged till the cold season, and in some it had not dried up till the approach of the hot season. Disease was very prevalent over the whole district, during the rainy and cold seasons; and the mortality was very great; particularly in the vicinity of the places mentioned above, the inhabitants of some of which, where the flooding was greatest, and the water lodged the longest, were decimated. (*Vide* Table No. 1.)

During the rainy season of 1851, the whole Bangungah river passed by the new channel, and gradually straightened its course, till it now runs in a straight line, instead of turning to the south, round the spur of the hill. It has cut a bed from two to seven feet in depth, through a sandy soil. A mile below Serowlee it has uncovered three arches of an ancient bridge, the top of which lies three feet under the surface of the surrounding country.

The course of the water, with the submerging of the country, was similar to that of the previous year. The rains commenced in July, and terminated early in September, and there was no more rain before the end of the cold season. A drain had been cut between Dura and

Deoretha, and under Futtchpore, 10 feet wide, and from 3 to 4 feet deep, which assisted the escape of the water. In October many parts were sufficiently dry for cultivation, and by the end of November only a few low places contained water. In December this part of the country was covered with luxuriant crops of wheat and barley. There was comparatively little sickness this year, and there was little mortality, as shown by the accompanying tables. The disease appeared in the villages that were formerly affected, and the mortality was confined to those who had suffered severely the previous year. It appeared in August, gained its maximum in September, and then gradually subsided. In December the people looked sallow and emaciated. A great number had enlargement of the spleen, obstinate quartan agues, rheumatic pains, and want of appetite.

The disease is such as is usually found in low marshy places. It is the same that annually appears in the vicinity of the Agapore bund, and which prevailed in the country from Bhurtpore to Muthra, and also to the north of Futtchpore in 1845, after it had been flooded that rainy season by the bursting of the Bhurtpore bund. A similar disease devastated the Sunderbunds in 1833, after they were flooded by a severe storm in April. It followed the flooding of the country by the water brought in by this canal, and was most prevalent where the waters lodged the longest. It is the general belief of the people, that the disease was induced by the waters of the canal, and I fully concur in this opinion, more particularly as similar diseases had not prevailed in the pergunnah before 1849, with the exception of the northern part already mentioned as having become sickly after being flooded in 1845.

The *chief* cause of the disease is *miasma*, generated by the decomposition of vegetable and mineral substances, under the influence of shallow stagnant water, and slow desiccation; and accelerated by the presence of soluble salts.

The influence of vegetation, when the sun is shining, is purifying; hence the air, when malaria exists, is less injurious during the day than the night. The malarious gases are heavier than atmospheric air, and, in calm weather, rest in hollows, and near the surface of the ground. This is confirmed by the comparative healthiness of the villages situated on high ground, and on hills, in the accompanying Table, No. II.

The effects on the body are not prominent in many cases for several days after exposure; several of the guard were attacked with fever after returning to Agra from Futtch-pore.

I have observed similar deferred attacks in other situations, as well as suffered from them myself on two occasions.

Another influential cause, one to which alone the natives attribute the disease, is drinking the *stagnant water*. The best illustration of this cause\* occurred in three ships, required to transport 800 troops from Bona to Marseilles in July 1834. Two vessels were properly provisioned and watered; but a third being found necessary, the water for the troops was hastily drawn from a neighbouring marsh. The water for the crew had previously been laid in, and they remained healthy during the voyage, whilst all the troops, 120 in number, were seized with different forms of ague; with the exception of nine, who not liking their water, bribed the sailors to supply them from their stock, none of the troops or crews of the two other vessels were affected. As the disease may be induced by *either cause*, it is more likely to follow where *both* are combined.

The disease was *miasmatic fever* in various forms, of remittent fever, frequently accompanied by dysentery,

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\* *Vide* Report of the General Board of Health of 1848 with Appendices, London, 1850. Quoted in the *Calcutta Quarterly Review*, No. 31, September 1851, page 211.

which generally proved fatal ; and of intermittent fever of various types, accompanied by enlargement of the spleen, irregularity of the bowels, want of appetite and emaciation. During the cold season rheumatism and coughs were prevalent. Enlargement of the spleen, though not fatal, is a very common affection, and always accompanied by ague in the rainy season.

I have observed amongst the European Artillery at Mhow, that those who recovered from severe attacks of remittent fever, suffered the following year from ague. There was generally good health afterwards, unless there was enlargement of the spleen, and these cases continued subject to ague, and were sent to the hills for change of air. The inhabitants of Futtehpoore have suffered in a similar manner. Remittent fever was very fatal in 1849 and 1850, and ague general, though not fatal during the past year, as shown in Table No. III.

There will always be sickness at the end of the rainy season, particularly amongst new arrivals, and in years when the rains are heavy, and late in the season ; but if the land be sufficiently dry for cultivation by the end of September, the mortality will not be great, and will probably never approach that of 1850.

It will not be necessary to state the *minutiae* of the medical treatment of the disease. Quinine is the sheet-anchor, and iron a most powerful auxiliary, in the after stages, particularly when the spleen is affected. I taught the people to make a chalybeate water,\* which is now extensively used with great advantage. They were told to avoid drinking *surface water*, and only to use the water from pukka wells, and that after boiling. Many of these pukka wells had been overflowed and filled by the flood-

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\* Put four seers of water and a chittack of black salt in a gurrah, make a piece of iron red hot and plunge it into this 20 or 30 times. This makes Loha-ke panee. The dose for an adult is two chittacks every day, taking care that the bowels are freely opened.

ing. This should be prevented in future by raising the pukka work. The people were also recommended to sleep well raised from the ground, and in upper stories when practicable.

The *general* remedy is the prevention or removal of the cause of the disease, *viz.* the *excess* of stagnant water. The canal at Serowlee has diverted the course of the Utungun river, and apparently restored it to its ancient channel, from which it would be very difficult now to turn it. There is a tradition that in Akbar's days it passed by the Munde Mirza Khan; but in Jehangere's time, there was a dust storm, which in an hour buried that part of the country in sand, to the depth of eight fathoms, or twelve feet, and changed the course of the river. The ancient bridge now uncovered corroborates this story which is rendered more probable by the new channel at the Munde, being seven feet lower than the bed of the river at the spur of the ridge. The records of the lake at Futtehpore report its having been fed from the Bangunah, and a canal in those days as well as now, would have diverted the river. The surplus water from both sides of Futtehpore is collected in the Kharee Nuddee, and rejoins the bed of the Utungun, or Gumbeer, before falling into the Jumna. The appearance of the country would indicate that the river had originally passed to the south of Undera and Dura, in the line of the drain which has been carefully surveyed by Mr. Parsick, and is now in progress under the instructions of Mr. M. R. Gubbins. The present cut is too small to prevent flooding, but the current will in time widen it, till it form the bed of the river, unless, for purposes of irrigation, it be regulated by bunds and sluices. A bund at Munde Mirza Khan would prevent the water passing to the south of Futtehpore, by making sluices in this bund, and on bunds constructed on the high land to the N W. of Undera, and to the N E. of Dura, the supply of water could be regulated, and a con-

siderable extent of country irrigated in the same manner as in the Bhurtpore territories at Agapore.

The Agapore bund is about 14 miles west of Futtchpore Seckree; it is nine miles long, and has been in operation for eight years; there are four sluices, which are shut at the commencement of the rains, and the country above the bund is flooded by water brought in by a canal from the Bangungah river. In the beginning of September the sluices are opened, and the water runs off. As the land dries it is ploughed, and the crops are sown in October. The water that escapes from the bund runs principally in the direction of Bhurtpore, but part also passes towards Futtchpore. The country was formerly unproductive, but there was little sickness. Since the bund was made it has been very productive, but there has annually been considerable sickness, commencing in August and lasting till the end of December. The villages inside the bund suffer most severely, but all the villages below it, which are flooded by the water, suffer, though in a less degree, from ague and spleen. They say that the people who drink this water in the line of country through which it passes, far distant from Agapore, suffer from ague. During the cold season 1850-51 the sickness was unusually great. It has been moderate during the present. They suffer from the same diseases, and have the same sallow appearance, as the inhabitants of Dura, and they attribute their sickness to the bund, or rather to drinking water from the bund. This mode of irrigation allows one soaking to the ground; and the deposit of anything suspended in the water, the main body of which is wasted, and sickness follows. In Central India, where irrigation *by bunds* is general, the water is drawn off as required in the neighbouring fields during the cold season, and it does not induce sickness. In the interior of the Himalayas, where the cultivation on the terraces on the sides of the hills is by irrigation from *running streams*, there is



no ague. I have never traced ague to irrigation *from wells*, or from rivers where the water was *raised mechanically* to the fields. Abundant crops are produced by these means in places which would otherwise be waste; but there is no sickness such as has prevailed at Futtehpore Seekree, and Agapore, and in the vicinity of most tropical canals. The *lodging of stagnant water* appears to form the characteristic distinction between these different modes of irrigation. In the hills, where there is abundance of water, the superfluity runs off; and in the plains, the expense of raising the water, and the scantiness of the supply in Central India, prevents more than is necessary being raised, and secures there being none to stagnate; whereas the water is superabundant, and stagnates at Agapore, and in the vicinity of unhealthy places near canals.

In the accompanying tables, the last census, which was taken in 1848, furnishes the number of the inhabitants. The area and the extent of surface flooded, and the mortality in 1849 and 1850, are taken from the records in the Collector's office; the mortality in 1849 only includes those who died from fevers during the year. The mortality in 1850 includes all the deaths that occurred during the rainy and cold seasons, *viz.*, from August 1850 to January 1851 inclusive. The reports of sickness and mortality in 1851 extend from August to December. The return of deaths is correct, but that of the number sick is arbitrary, as in some places those only were reported sick who were not likely to live, whilst in others a more general definition was used. The classification of the villages is founded on the mortality during the year 1850. The mortality in 1849 assimilated very closely to it. As a general rule, the mortality in these tables is in proportion to the surface flooded. The exceptions to this rule are:—

I. There was little mortality with great flooding in the following instances:—

(a.)—Where the village was on a hill or high ground.

(b.)—Where the village was near the Kharee Nuddee, and the water soon ran off.

(c.)—Where the village was near an old jheel, and where consequently the inhabitants were accustomed to a similar atmosphere.

II.—There was great mortality in several villages where the lands were not flooded ; but they were in the vicinity of flooded lands.

J. MURRAY, *M. D.*

## APPENDIX

*Statistical Table of the Flooding and Mortality in the Per*

| Class of Mortality<br>in 1850. | Number of Villages. | Area.  | Population. | Flooding. |       |       | Deaths. |       |       |
|--------------------------------|---------------------|--------|-------------|-----------|-------|-------|---------|-------|-------|
|                                |                     |        |             | 1849.     | 1850. | 1851. | 1849.   | 1850. | 1851. |
| Under 1 per cent. ...          | 23                  | 26874  | 9833        | 2743      | 2265  | 2209  | 35      | 23    | 37    |
| Under 2 per cent. ...          | 20                  | 18554  | 9221        | 2156      | 1870  | 1936  | 34      | 123   | 56    |
| Under 3 per cent. ...          | 19                  | 18373  | 6752        | 1242      | 972   | 1099  | 77      | 171   | 30    |
| Under 4 per cent. ...          | 14                  | 16747  | 8904        | 4170      | 2334  | 2003  | 219     | 294   | 24    |
| Under 5 per cent. ...          | 6                   | 8913   | 10170       | 3212      | 4018  | 3971  | 69      | 439   | 200   |
| Under 6 per cent. ...          | 4                   | 2271   | 890         | 554       | 485   | 430   | 27      | 50    | 7     |
| Under 7 per cent. ...          | 4                   | 3786   | 1653        | 1875      | 1616  | 1436  | 39      | 108   | 7     |
| Under 8 per cent. ...          | 3                   | 4257   | 2533        | 1632      | 1237  | 1272  | 70      | 188   | 10    |
| Under 9 per cent. ...          | 3                   | 3188   | 1677        | 939       | 811   | 843   | 85      | 139   | 6     |
| Over 10 per cent. ...          | 4                   | 5909   | 4126        | 1627      | 1370  | 1678  | 237     | 449   | 14    |
| Total, ...                     | 100                 | 103872 | 55209       | 20200     | 16978 | 17022 | 942     | 1989  | 391   |

## DIXON O. I.

*gunnah of Futtelpore Seekree, during the years 1849-50 & 1851.*

| Sickness in 1851. | 1849.<br>Ratio per cent. |                         |                       | 1850.<br>Ratio per cent. |                         |                       | 1851.<br>Ratio per cent. |                         |                       |                             |
|-------------------|--------------------------|-------------------------|-----------------------|--------------------------|-------------------------|-----------------------|--------------------------|-------------------------|-----------------------|-----------------------------|
|                   | Flooding to Area.        | Flooding to Population. | Deaths to Population. | Flooding to Area.        | Flooding to Population. | Deaths to Population. | Flooding to Area.        | Flooding to Population. | Deaths to Population. | Sick to Population in 1851. |
| 175               | 10.20                    | 27.89                   | 0.35                  | 8.42                     | 23.03                   | 0.23                  | 8.05                     | 23.33                   | 0.37                  | 1.77                        |
| 218               | 11.62                    | 23.40                   | 0.37                  | 10.07                    | 20.27                   | 1.33                  | 10.70                    | 21.53                   | 0.60                  | 2.86                        |
| 231               | 6.76                     | 18.39                   | 1.14                  | 5.29                     | 14.39                   | 2.53                  | 5.90                     | 16.27                   | 0.44                  | 3.42                        |
| 90                | 24.90                    | 49.21                   | 2.63                  | 14.24                    | 23.70                   | 3.54                  | 11.99                    | 24.18                   | 0.23                  | 1.03                        |
| 210               | 36.04                    | 31.53                   | 0.67                  | 45.03                    | 30.50                   | 4.31                  | 44.55                    | 39.04                   | 1.96                  | 2.06                        |
| 42                | 24.30                    | 62.25                   | 3.03                  | 21.35                    | 54.49                   | 5.61                  | 16.93                    | 43.31                   | 0.78                  | 4.72                        |
| 36                | 66.13                    | 113.43                  | 2.36                  | 40.04                    | 91.71                   | 6.53                  | 37.02                    | 86.87                   | 0.42                  | 2.17                        |
| 18                | 39.51                    | 65.11                   | 2.71                  | 30.23                    | 49.82                   | 7.23                  | 22.55                    | 49.24                   | 0.23                  | 0.60                        |
| 8                 | 20.45                    | 55.99                   | 5.06                  | 25.43                    | 48.36                   | 8.23                  | 20.44                    | 59.25                   | 0.35                  | 0.47                        |
| 123               | 27.53                    | 39.43                   | 6.95                  | 23.18                    | 33.20                   | 10.88                 | 23.39                    | 40.66                   | 0.33                  | 2.93                        |
| 1151              | 18.53                    | 36.53                   | 1.70                  | 15.59                    | 30.75                   | 3.60                  | 15.63                    | 33.63                   | 0.70                  | 2.03                        |

## APPENDIX

*Statistical Table of the Flooding and Mortality in the Pergunnah  
showing the influence of the*

| Class of Mortality in 1850.       | Situation of Village and Land.                                       | Number of Villages. | Area in Acres. | Population. | Flooding. |       |       |
|-----------------------------------|----------------------------------------------------------------------|---------------------|----------------|-------------|-----------|-------|-------|
|                                   |                                                                      |                     |                |             | 1849.     | 1850. | 1851. |
| I.—MORTALITY<br>UNDER 3 PER CENT. | Lands not flooded, ...                                               | 48                  | 51474          | 19951       | 2306      | 1953  | 1825  |
|                                   | Lands flooded (3 villages)<br>near Nuddeo and soon<br>dried, A, ...  | 3                   | 3176           | 763         | 260       | 169   | 348   |
|                                   | Lands flooded (4 villages)<br>near an old Jheel, B, ...              | 4                   | 3623           | 1159        | 1575      | 1434  | 1434  |
|                                   | Lands flooded (7 villages)<br>on Hills or high land, C, ...          | 7                   | 5528           | 3933        | 2000      | 1551  | 1777  |
|                                   | Total, ...                                                           | 62                  | 63801          | 25806       | 6141      | 5107  | 5384  |
| II.—MORTALITY<br>OVER 3 PER CENT. | Lands flooded villages on<br>level ground, ...                       | 27                  | 31032          | 16585       | 10375     | 8028  | 7852  |
|                                   | Lands flooded (3 villages) on<br>Hills, D, ...                       | 3                   | 7351           | 9537        | 3578      | 3749  | 3636  |
|                                   | Lands not flooded, but<br>(8 villages) near flooded<br>lands, E, ... | 8                   | 6688           | 3281        | 106       | 94    | 100   |
|                                   | Total, ...                                                           | 38                  | 4507           | 29403       | 14059     | 11871 | 11638 |
|                                   | Grand Total, ...                                                     | 100                 | 108872         | 55209       | 20200     | 16978 | 17022 |

A.—3 Villages.

Bakunda.  
Chehorah.  
Singarpoor.

B.—4 Villages.

Paulee,  
Khash Mohomedpoor.  
Suhanpoor.  
Sunothee.

C.—7 Villages.

Tera Rawnt.  
Tajpoor.  
Singowlee.  
Dabur.  
Serowlee Miryakhas.  
Munda.  
Munda Kundsyal.

## DIX No. II.

of Futtchpore Seckree, during the years 1849-50 and 1851,  
situation of the village.

| Death. |       |       | Sickness in 1851. | Ratio per cent.<br>1849. |                         |                       | Ratio per cent.<br>1850. |                         |                       | Ratio per cent.<br>1851. |                         |                       |                     |
|--------|-------|-------|-------------------|--------------------------|-------------------------|-----------------------|--------------------------|-------------------------|-----------------------|--------------------------|-------------------------|-----------------------|---------------------|
| 1849.  | 1850. | 1851. |                   | Flooding to area.        | Flooding to population. | Deaths to population. | Flooding to area.        | Flooding to population. | Deaths to population. | Flooding to area.        | Flooding to population. | Deaths to population. | Sick to population. |
| 62     | 255   | 109   | 504               | 4.48                     | 11.55                   | 0.31                  | 3.79                     | 9.78                    | 1.27                  | 3.54                     | 9.14                    | 0.54                  | 2.52                |
| 0      | 5     | 4     | 28                | 8.18                     | 34.07                   | 0.00                  | 5.32                     | 22.15                   | 0.65                  | 10.95                    | 45.6                    | 0.52                  | 3.67                |
| 8      | 9     | 4     | 39                | 43.17                    | 135.89                  | 0.25                  | 39.58                    | 132.76                  | 0.77                  | 39.58                    | 132.76                  | 0.34                  | 3.36                |
| 81     | 53    | 6     | 53                | 36.17                    | 50.85                   | 2.06                  | 28.05                    | 39.46                   | 1.24                  | 32.14                    | 45.18                   | 0.15                  | 1.24                |
| 146    | 322   | 123   | 624               | 9.62                     | 23.79                   | 0.50                  | 8.00                     | 19.79                   | 1.24                  | 8.43                     | 20.86                   | 0.47                  | 2.41                |
| 772    | 1059  | 61    | 302               | 33.43                    | 62.29                   | 4.65                  | 25.86                    | 48.39                   | 6.38                  | 25.29                    | 47.34                   | 0.36                  | 1.82                |
| 24     | 391   | 196   | 126               | 48.67                    | 37.51                   | 0.25                  | 51.00                    | 39.30                   | 4.10                  | 50.14                    | 38.64                   | 2.05                  | 1.32                |
| 0      | 207   | 11    | 99                | 1.58                     | 3.24                    | 0.00                  | 1.40                     | 2.84                    | 6.30                  | 1.49                     | 3.04                    | 0.33                  | 3.01                |
| 796    | 1657  | 268   | 527               | 31.19                    | 47.80                   | 2.70                  | 26.33                    | 40.35                   | 5.63                  | 25.79                    | 39.57                   | 0.91                  | 1.79                |
| 942    | 1989  | 391   | 1151              | 18.55                    | 36.58                   | 1.70                  | 15.59                    | 30.75                   | 3.60                  | 15.63                    | 30.83                   | 0.76                  | 2.08                |

D.—3 Villages.

Bhopore.

Joutanah.

Futtchpore Seckree.

E.—8 Villages.

Moree.

Naja Majolee.

Gohumakalar.

Ikram Nugur.

Bissan Chahar.

Jajow.

Russoolpoor.

Sonera.

JOHN MURRAY, M. D.

# APPENDIX NO. III.

*Table of the Sickness and Mortality in the Pergunnah of Futtehpore Seekree, from the 15th August to the 31st December, 1851.*

| Number of villages. | Area in Acres. | Population. | Flooding. | From 16th to 31st August. |         | 1st to 15th September. |         | 16th to 30th September. |         | 1st to 15th October. |         | 16th to 31st October. |         | 1st to 15th November. |         | 16th to 30th November. |         | 1st to 31st December. |         | Total. |         | Ratio per cent. to Population. |         |
|---------------------|----------------|-------------|-----------|---------------------------|---------|------------------------|---------|-------------------------|---------|----------------------|---------|-----------------------|---------|-----------------------|---------|------------------------|---------|-----------------------|---------|--------|---------|--------------------------------|---------|
|                     |                |             |           | Sick.                     | Deaths. | Sick.                  | Deaths. | Sick.                   | Deaths. | Sick.                | Deaths. | Sick.                 | Deaths. | Sick.                 | Deaths. | Sick.                  | Deaths. | Sick.                 | Deaths. | Sick.  | Deaths. | Sick.                          | Deaths. |
| 100                 | 108872         | 55209       | 17022     | 172                       | 28      | 541                    | 37      | 188                     | 19      | 80                   | 35      | 154                   | 44      | 6                     | 33      | 10                     | 48      | 0                     | 147     | 1151   | 391     | 209                            | 037     |

JOHN MURRAY, M. D.

**No. 5.****MEDICAL STATISTICS OF SAHARUNPORE.**

No. I.—*Report by A. Ross, Esq., Officiating Magistrate of Saharunpore, No. 62, dated 24th July, 1854.*

At the request of Dr. Playfair, Civil Assistant Surgeon, I have the honor to transmit, in original, his report on the Medical Statistics of this district, for the year 1853, with the Statements and Sketch Map which accompanied it.

2nd.—I do not think it advisable to detain the report until I could verify those portions of the returns of which the accuracy is open to question. Under this head I would include the statements which would indicate the extensive prevalence of Female Infanticide throughout the district. Without meaning to question the existence of this crime altogether, I am inclined to agree with Dr. Playfair in ascribing much of the very great difference between the male and female births indicated by the returns, to the carelessness of the reporting chowkeedars, and to the much greater publicity given to the birth of a son among natives, than to that of a daughter. The difference indicated by the present returns is even greater than that disclosed by the late census returns, the results of which, as being more carefully prepared, were still more startling, and have not, to the best of my belief, been attempted to be accounted for.

3rd.—The machinery which would be necessary for the close surveillance of the whole district would be immense, while there is no doubt that in particular villages, or even clusters of villages, where the crime is supposed to be most prevalent, much might be done towards its suppression, by employing an establishment, first to record each female birth, and then to watch the progress, and report the cause of death, of each female child.

4th.—The other statistics collected are highly interesting, and will, I am certain, be acceptable to Government.

RCSS.



No. II.—*Report on the Medical Statistics of Zillah Saharunpore, for the year 1853, by G. R. PLAYFAIR, Esq., M. D., Civil Assistant Surgeon.*

MEDICAL STATISTICS, although a comparatively recent science, (scarcely yet sufficiently appreciated,) supply so many important facts regarding the condition of nations and districts, that I am induced to forward the accompanying Medical Statistics of Zillah Saharunpore, for the year 1853, in the hope they may be deemed interesting.

The tables have been constructed from monthly returns collected by me, at first with the sole intention of discovering the truth of an impression very prevalent, but based on no facts, that the sickness and mortality for which the Saharunpore zillah has gained such an unenviable notoriety were, in a great measure, caused by the irrigation from the Eastern Jumna Canal. This can only be decided in a series of years.

The accompanying Map exhibits the extent of irrigated and khadir lands, and Table No. 4 gives the percentage of deaths on population, from fevers and other diseases in each thannah.

In the course of my investigation of the monthly returns so many interesting facts were developed, that I was induced to form a series of tables, exhibiting the amount of deaths amongst the three classes included in my returns; the number of births; the proportion of male to female births; &c.

In making out a table of population I have met with some difficulties, causing considerable delay, inasmuch as the census of the 31st December, 1852, was *pergunnahwar*, and my medical returns *thannahwar*; and in this zillah the thannahs are in some cases in three different pergunnahs.

Thanks to the kind assistance of the Magistrate, Mr. Ross, I have been enabled to form a tolerably correct census, thannahwar, without which the tables would have been useless.

Further, the medical returns were collected under three heads: first, Hindoos; second, Mahomedans; third, low castes: but the percentages have necessarily been calculated under two heads, as the census tables give only; first, Hindoos; second, Mahomedans and other castes.

I do not pretend that the tables are correct as to the actual number of deaths and births which occurred in 1853. The machinery at my command was imperfect, and I had no means of checking the monthly returns; but assuming them to be tolerably correct, I believe they will be found interesting, if only to show the valuable information which can be gained by such means.

With regard to the very important subject of Infanticide, I have been frequently informed by intelligent natives, that it is supposed to be practised to a considerable extent in several parts of this zillah. The castes said to be chiefly addicted to it are Rajpoots, Goojurs, and Jâts.

The means by which the female children are got rid of, have been described to me as strangulation when born, or the administration of a mixture of tobacco, and the acrid milk of the mudar plant, or sometimes (but less frequently) by exposure.

The difference between the amount of male and female births (see Table, page 372) is so startling, that I cannot bring myself to believe that it arises from infanticide, but rather in some measure from carelessness on the part of the village chowkeedars in procuring information, and from the native prejudice which makes a father boast of the birth of a son, but unwilling to acknowledge the birth of a daughter.

Still there is *the fact* that, in the last census, there is also a notable difference between the amount of males and females.

Hindoos, 27 males to 20 females.  
Mahomedan and other castes,  
23 males to 20 females.

} In all Europe, the proportion  
is 21 to 20.

The census for 1848 being acknowledged to be very incorrect, I am unable to give the average increase per annum of the population, which would have enabled me to judge whether the increase for the year 1853 is in nearly the same proportion.

Correct facts on this head cannot be procured, unless Government authorizes their district officers to organize a more perfect mode of collecting the medical returns,—one which will admit of their being checked.

I have had no assistance, beyond an order issued at my request by the late Magistrate, Mr. Craigie, in June, 1852, that each thannahdar was to send me, monthly, such information as I wished; and, from the difficulty of making my wishes understood, and the numerous mistakes, it was not until January, 1853, that I was enabled to commence registering the results. I must again repeat that I consider the accompanying tables interesting,—more as indicating results, than as a collection of facts.

In constructing a list of “causes of death,” it was necessary to use such names of “diseases” as were commonly known to, or could be easily understood by, every native.

It was useless to make such distinctions as bronchitis, pleuritis, intermittent, or remittent fever, dysentery, diarrhoea; these, therefore, were classed as diseases of the chest, fevers, purgings.

It was also necessary to make such an arrangement, that every possible disease could be placed under one or other given head.

Some years since, when attempting a collection of medical statistics at Shahjehanpore, I left a column headed “other diseases.” The result was, that a large proportion of the mortality in that zillah appeared to be caused by “evil spirits.”

One most important point in medical statistics is, to learn the age at which deaths occur.

To discover the exact age of a native is simply an impossibility ; no native knows his own age ; but an approximation might be made by classing the deaths under four heads, commonly used by the natives themselves, when indicating a person's age ; *viz.*, at the breast ; boy ; man ; old man.

The tables are eleven in number, and comprise :—

- 1.—Population of Zillah Saharunpore, *Thannahwar*.
- 2.—Causes of death.
- 3.—Deaths from fevers.
- 4.—Percentage of deaths from fevers, on population of each thannah.
- 5.—Deaths from small-pox.
- 6.—Births in each thannah in each month.
- 7.—Deaths in each thannah in each month.
- 8.—Births in each caste in each month.
- 9.—Deaths in each caste in each month.
- 10.—Percentage of deaths in each caste in certain diseases.
- 11.—Excess per cent. of males, on whole number born.

There are many points of great interest, which can only be developed by a comparison of the statistics of several years.

The greater the number of facts, the more likely are we to discover some general law under which disease arises. What may appear accidental as regards an individual, or a few, frequently exhibits a certainty, when our investigations are enlarged by the microscope of statistical enquiry.

To give a familiar example : nothing can assuredly be more accidental as regards an individual than sending a letter unsealed or unaddressed to the post office ; yet it is found, among the millions of letters yearly passing through the London post-office, that a certain recurring proportion are unsealed.

In conclusion, I may mention that I am collecting the medical statistics of this zillah for the year 1854, and will arrange them under their proper heads, should a second report on this subject be acceptable.

It would add very much to its interest, if Government authorized the taking a census of the exact number of children, male and female, among the Rajpoot and Goojur castes, say on the first day of any month.

To show the importance of this, as regards Infanticide, I give a *fact*, which occurred in thannah Sundous, zillah Etawah, in the year 1846.

In that year there was not *one* female Rajpoot or Goojur child in the whole thannah. Certain inquiries were made, and lists taken of pregnant women; the result was, that within fourteen months, Sundous contained 100 living female infants of the above castes.

From the small scale on which the map has been drawn, I regret that it is impossible to show the extent of irrigated land with any accuracy.

GEO. R. PLAYFAIR, M. D.,

*Civil Assistant Surgeon, Saharanpore.*

No. 1.—Population of each *Thannah* in Zillah Saharunpore for 1852.

| TOWNSHIPS.      | Hindus.  |          |          | Mahomedans and other castes. |          |          | Total of each <i>Thannah</i> . |
|-----------------|----------|----------|----------|------------------------------|----------|----------|--------------------------------|
|                 | Males.   | Females. | Total.   | Males.                       | Females. | Total.   |                                |
| Betwah, ...     | 34,626   | 22,827   | 57,453   | 26,578                       | 21,773   | 48,351   | 1,05,804                       |
| Berh, ...       | 12,756   | 9,232    | 22,988   | 6,009                        | 4,918    | 10,927   | 33,915                         |
| Bela, ...       | 21,265   | 16,449   | 37,714   | 11,369                       | 9,241    | 20,610   | 58,324                         |
| Beswar, ...     | 14,927   | 10,214   | 25,141   | 4,992                        | 4,058    | 9,050    | 34,191                         |
| Gangoo, ...     | 25,222   | 21,529   | 46,751   | 12,760                       | 10,929   | 23,689   | 70,440                         |
| Chilima, ...    | 17,773   | 12,631   | 30,404   | 12,519                       | 10,819   | 23,338   | 53,742                         |
| Burhanpoor, ... | 22,535   | 22,074   | 44,609   | 11,782                       | 9,434    | 21,216   | 65,825                         |
| Munglour, ...   | 20,725   | 26,787   | 47,512   | 15,034                       | 10,671   | 25,705   | 73,217                         |
| Jawalpoor, ...  | 27,511   | 16,619   | 44,130   | 7,611                        | 5,920    | 13,531   | 57,661                         |
| Hurdwar, ...    | 914      | 525      | 1,439    | 58                           | 10       | 68       | 1,507                          |
| Saltanpoor, ... | 11,256   | 11,389   | 22,645   | 2,321                        | 1,890    | 4,211    | 26,856                         |
| Napul, ...      | 18,659   | 14,421   | 33,080   | 4,670                        | 2,763    | 7,433    | 40,513                         |
| Burgoon, ...    | 19,663   | 11,794   | 31,457   | 2,030                        | 1,693    | 3,723    | 35,180                         |
| Rampore, ...    | 24,405   | 18,172   | 42,577   | 6,447                        | 5,199    | 11,646   | 54,223                         |
| Runkundee, ...  | 30,813   | 12,714   | 43,527   | 6,479                        | 5,212    | 11,691   | 55,218                         |
| Diobund, ...    | 4,957    | 3,931    | 8,888    | 5,171                        | 4,603    | 9,774    | 18,662                         |
| Total, ...      | 3,20,265 | 2,31,975 | 5,52,240 | 1,35,428                     | 1,09,957 | 2,45,385 | 7,97,625                       |

NOTE.—The totals correspond with the printed census, but in the respective numbers of Mahomedan, &c., males and females, there is a slight difference, arising from some error in making out this table, and as there are upwards of 2,000 villages, it would take too much time to rectify it.

GEO. R. PLAYFAIR, M. D.

## 216 SELECTIONS FROM THE RECORDS OF GOVERNMENT.

## No. II.—Causes of Death in each

| DISEASE.               |                    |     |     | January. | February. | March. | April. | May.  |
|------------------------|--------------------|-----|-----|----------|-----------|--------|--------|-------|
| Stone, ... ..          | ...                | ... | ... | 0        | 0         | 0      | 0      | 1     |
| Fever, ... ..          | ...                | ... | ... | 735      | 466       | 495    | 635    | 535   |
| Small-pox, ... ..      | ...                | ... | ... | 132      | 82        | 206    | 362    | 666   |
| Cholera, ... ..        | ...                | ... | ... | 22       | 9         | 24     | 14     | 29    |
| Lepra, ... ..          | ...                | ... | ... | 7        | 4         | 3      | 7      | 7     |
| Diarrhœa, ... ..       | ...                | ... | ... | 46       | 27        | 32     | 39     | 50    |
| Dropsy, ... ..         | ...                | ... | ... | 8        | 0         | 0      | 0      | 5     |
| Spleen, ... ..         | ...                | ... | ... | 2        | 2         | 0      | 1      | 1     |
| Hydrophobia, ... ..    | ...                | ... | ... | 1        | 0         | 0      | 3      | 2     |
| Syphilis, ... ..       | ...                | ... | ... | 11       | 3         | 0      | 1      | 3     |
| Coup-de-soleil, ... .. | ...                | ... | ... | 0        | 0         | 0      | 0      | 0     |
| Lightning, ... ..      | ...                | ... | ... | 0        | 0         | 0      | 2      | 1     |
| Suicides.              | { Burned, ... ..   | ... | ... | 0        | 3         | 6      | 1      | 0     |
|                        | { Poisoned, ... .. | ... | ... | 1        | 0         | 0      | 0      | 0     |
|                        | { Drowned, ... ..  | ... | ... | 0        | 1         | 5      | 3      | 0     |
|                        | { Hanged, ... ..   | ... | ... | 0        | 0         | 0      | 0      | 0     |
| Wounds—Cuts, ... ..    | ...                | ... | ... | 0        | 0         | 2      | 0      | 0     |
| Wounds—Bruises, ... .. | ...                | ... | ... | 0        | 0         | 0      | 0      | 0     |
| Wounds—Gunshot, ... .. | ...                | ... | ... | 0        | 0         | 0      | 0      | 0     |
| Serpents, ... ..       | ...                | ... | ... | 0        | 0         | 0      | 0      | 1     |
| Wild Beasts, ... ..    | ...                | ... | ... | 2        | 2         | 1      | 2      | 3     |
| Parturition, ... ..    | ...                | ... | ... | 3        | 8         | 4      | 4      | 2     |
| Still-born, ... ..     | ...                | ... | ... | 7        | 16        | 26     | 14     | 9     |
| Diseases<br>of {       | Head, ... ..       | ... | ... | 11       | 13        | 10     | 1      | 2     |
|                        | Chest, ... ..      | ... | ... | 24       | 29        | 27     | 14     | 24    |
|                        | Abdomen, ... ..    | ... | ... | 50       | 16        | 33     | 23     | 54    |
|                        | Skin, ... ..       | ... | ... | 16       | 16        | 15     | 18     | 7     |
| Total, ...             |                    |     |     | 1,078    | 696       | 889    | 1,144  | 1,492 |

The mortality from fevers is greatest during and after Small-pox is most fatal during the hottest months; viz., The proportion of still-born children, to the whole num The proportion in Europe is 1 in 77.

In all the chief causes of death, the Hindoos suffer less

month throughout the year 1853.

| June. | July. | August. | September. | October. | November. | December. | Total of each disease. |
|-------|-------|---------|------------|----------|-----------|-----------|------------------------|
| 0     | 0     | 0       | 0          | 0        | 0         | 3         | 4                      |
| 478   | 565   | 973     | 1,293      | 1,212    | 883       | 687       | 8,956                  |
| 523   | 360   | 248     | 85         | 128      | 126       | 67        | 2,986                  |
| 14    | 39    | 14      | 10         | 16       | 12        | 6         | 209                    |
| 2     | 6     | 8       | 4          | 6        | 7         | 7         | 68                     |
| 24    | 48    | 72      | 67         | 33       | 67        | 42        | 547                    |
| 0     | 4     | 0       | 0          | 2        | 1         | 1         | 21                     |
| 1     | 0     | 3       | 1          | 3        | 2         | 1         | 17                     |
| 3     | 0     | 0       | 0          | 0        | 0         | 0         | 9                      |
| 7     | 1     | 2       | 0          | 2        | 0         | 5         | 30                     |
| 0     | 0     | 1       | 0          | 0        | 0         | 0         | 1                      |
| 0     | 0     | 0       | 0          | 0        | 0         | 0         | 3                      |
| 1     | 0     | 0       | 0          | 0        | 0         | 1         | 12                     |
| 0     | 0     | 0       | 0          | 0        | 0         | 0         | 1                      |
| 9     | 10    | 8       | 3          | 3        | 3         | 2         | 47                     |
| 0     | 0     | 1       | 1          | 0        | 0         | 0         | 2                      |
| 0     | 0     | 0       | 0          | 0        | 0         | 0         | 2                      |
| 1     | 0     | 1       | 0          | 0        | 1         | 2         | 5                      |
| 0     | 0     | 0       | 0          | 0        | 0         | 0         | 0                      |
| 0     | 2     | 6       | 3          | 1        | 0         | 0         | 13                     |
| 3     | 2     | 1       | 1          | 0        | 0         | 0         | 17                     |
| 5     | 4     | 6       | 5          | 5        | 10        | 6         | 62                     |
| 15    | 21    | 9       | 13         | 7        | 15        | 15        | 167                    |
| 2     | 5     | 2       | 0          | 4        | 2         | 1         | 53                     |
| 20    | 16    | 13      | 1          | 8        | 5         | 9         | 190                    |
| 40    | 20    | 10      | 3          | 10       | 5         | 9         | 273                    |
| 11    | 1     | 8       | 2          | 2        | 3         | 10        | 108                    |
| 1,159 | 1,104 | 1,386   | 1,492      | 1,442    | 1,142     | 874       | 13,898                 |

the heaviest falls of rain; viz., from July to January.

May to September.

ber of births, is 1 in 85.

in proportion than the other castes.—See Table No. 10.



# 218 SELECTIONS FROM THE RECORDS OF GOVERNMENT.

## No. III.—Deaths in each District, and in each month,

|                | Kot-wallee. |                 | Keree. |                 | Behut. |                 | Nookur. |                 | Gungo. |                 | Chil-kana. |                 | Bugwan-pore. |                 | Mung-lour. |                 |
|----------------|-------------|-----------------|--------|-----------------|--------|-----------------|---------|-----------------|--------|-----------------|------------|-----------------|--------------|-----------------|------------|-----------------|
|                | Fevrs.      | Other diseases. | Fevrs. | Other diseases. | Fevrs. | Other diseases. | Fevrs.  | Other diseases. | Fevrs. | Other diseases. | Fevrs.     | Other diseases. | Fevrs.       | Other diseases. | Fevrs.     | Other diseases. |
| Jany.,         | 181         | 86              | 24     | 30              | 54     | 41              | 46      | 30              | 107    | 17              | 15         | 65              | 2            | 0               | 34         | 0               |
| Feb., ...      | 88          | 34              | 22     | 33              | 27     | 29              | 21      | 23              | 66     | 16              | 44         | 49              | 5            | 0               | 2          | 3               |
| March,         | 103         | 53              | 30     | 76              | 19     | 69              | 38      | 41              | 51     | 18              | 12         | 39              | 5            | 0               | 34         | 1               |
| Total, 1st Qr. | 372         | 173             | 76     | 139             | 100    | 139             | 105     | 94              | 224    | 51              | 71         | 153             | 12           | 0               | 91         | 4               |
| April,         | 126         | 81              | 37     | 23              | 31     | 65              | 18      | 71              | 48     | 31              | 34         | 63              | 4            | 13              | 61         | 11              |
| May, ...       | 87          | 149             | 23     | 118             | 44     | 89              | 26      | 75              | 18     | 33              | 40         | 90              | 27           | 34              | 75         | 12              |
| June, ...      | 78          | 136             | 25     | 131             | 30     | 93              | 4       | 29              | 44     | 42              | 0          | 44              | 20           | 24              | 66         | 10              |
| Total, 2nd Qr. | 291         | 366             | 85     | 272             | 105    | 247             | 43      | 175             | 110    | 106             | 74         | 197             | 51           | 71              | 202        | 33              |
| July, ...      | 108         | 131             | 23     | 118             | 30     | 25              | 31      | 83              | 33     | 23              | 22         | 29              | 20           | 18              | 102        | 6               |
| August,        | 189         | 74              | 0      | 0               | 66     | 13              | 44      | 56              | 151    | 39              | 42         | 78              | 33           | 21              | 136        | 4               |
| Sept.,         | 247         | 57              | 46     | 3               | 94     | 3               | 32      | 15              | 107    | 17              | 85         | 4               | 39           | 11              | 208        | 9               |
| Total, 3rd Qr. | 544         | 262             | 69     | 121             | 190    | 41              | 107     | 154             | 291    | 84              | 149        | 111             | 92           | 50              | 536        | 19              |
| Octr.,         | 160         | 37              | 42     | 6               | 49     | 5               | 93      | 33              | 86     | 8               | 66         | 16              | 36           | 52              | 284        | 1               |
| Novr.,         | 123         | 66              | 19     | 5               | 42     | 7               | 42      | 22              | 91     | 6               | 52         | 60              | 31           | 27              | 146        | 0               |
| Decr., ...     | 121         | 42              | 11     | 3               | 64     | 1               | 54      | 42              | 51     | 0               | 32         | 38              | 19           | 1               | 94         | 0               |
| Total, 4th Qr. | 409         | 145             | 72     | 14              | 155    | 13              | 189     | 97              | 224    | 14              | 150        | 114             | 86           | 73              | 524        | 1               |
| Total,         | 1616        | 946             | 302    | 516             | 550    | 440             | 449     | 520             | 849    | 277             | 444        | 575             | 241          | 194             | 1323       | 57              |

Total Fevers, ...  
Total other Diseases, ...  
Grand Total, ...

*from Fevers, compared with all other causes of death.*

| Jowal<br>lapore. |                 | Hurd-<br>war. |                 | Sultan-<br>pore. |                 | Nagul.  |                 | Bur-<br>gaon. |                 | Ram-<br>pore. |                 | Runkun-<br>dec. |                 | Deo-<br>bund. |                 | Total of Fevers. |      | Total of other diseases. |  |
|------------------|-----------------|---------------|-----------------|------------------|-----------------|---------|-----------------|---------------|-----------------|---------------|-----------------|-----------------|-----------------|---------------|-----------------|------------------|------|--------------------------|--|
| Fevers.          | Other diseases. | Fevers.       | Other diseases. | Fevers.          | Other diseases. | Fevers. | Other diseases. | Fevers.       | Other diseases. | Fevers.       | Other diseases. | Fevers.         | Other diseases. | Fevers.       | Other diseases. |                  |      |                          |  |
| 25               | 36              | 1             | 0               | 19               | 12              | 42      | 17              | 32            | 2               | 87            | 13              | 30              | 0               | 30            | 4               |                  |      |                          |  |
| 33               | 12              | 1             | 1               | 13               | 5               | 35      | 13              | 23            | 2               | 35            | 7               | 8               | 0               | 22            | 3               |                  |      |                          |  |
| 31               | 32              | 0             | 2               | 20               | 14              | 32      | 16              | 39            | 21              | 51            | 11              | 11              | 1               | 19            | 0               |                  |      |                          |  |
| —                | —               | —             | —               | —                | —               | —       | —               | —             | —               | —             | —               | —               | —               | —             | —               |                  |      |                          |  |
| 89               | 70              | 2             | 3               | 52               | 31              | 109     | 46              | 94            | 25              | 173           | 31              | 55              | 1               | 71            | 7               | 1696             | 967  |                          |  |
| —                | —               | —             | —               | —                | —               | —       | —               | —             | —               | —             | —               | —               | —               | —             | —               |                  |      |                          |  |
| 66               | 21              | 2             | 1               | 30               | 9               | 51      | 53              | 37            | 42              | 59            | 9               | 18              | 10              | 13            | 1               |                  |      |                          |  |
| 45               | 65              | 2             | 2               | 33               | 15              | 48      | 47              | 19            | 41              | 20            | 81              | 16              | 7               | 12            | 9               |                  |      |                          |  |
| 34               | 33              | 0             | 0               | 25               | 21              | 36      | 41              | 15            | 31              | 70            | 41              | 17              | 4               | 13            | 2               |                  |      |                          |  |
| —                | —               | —             | —               | —                | —               | —       | —               | —             | —               | —             | —               | —               | —               | —             | —               |                  |      |                          |  |
| 145              | 119             | 4             | 3               | 88               | 45              | 135     | 146             | 71            | 114             | 149           | 131             | 51              | 21              | 38            | 12              | 1947             | 2053 |                          |  |
| —                | —               | —             | —               | —                | —               | —       | —               | —             | —               | —             | —               | —               | —               | —             | —               |                  |      |                          |  |
| 55               | 36              | 2             | 4               | 21               | 11              | 23      | 16              | 23            | 9               | 35            | 16              | 8               | 3               | 24            | 6               |                  |      |                          |  |
| 30               | 19              | 1             | 3               | 38               | 7               | 78      | 13              | 44            | 11              | 53            | 51              | 41              | 14              | 27            | 7               |                  |      |                          |  |
| 45               | 13              | 0             | 2               | 29               | 6               | 66      | 19              | 64            | 4               | 59            | 35              | 69              | 0               | 42            | 2               |                  |      |                          |  |
| —                | —               | —             | —               | —                | —               | —       | —               | —             | —               | —             | —               | —               | —               | —             | —               |                  |      |                          |  |
| 130              | 68              | 3             | 9               | 88               | 24              | 167     | 48              | 136           | 24              | 147           | 105             | 118             | 17              | 93            | 15              | 2830             | 1152 |                          |  |
| —                | —               | —             | —               | —                | —               | —       | —               | —             | —               | —             | —               | —               | —               | —             | —               |                  |      |                          |  |
| 35               | 25              | 0             | 0               | 38               | 4               | 79      | 11              | 23            | 9               | 119           | 14              | 41              | 9               | 65            | 0               |                  |      |                          |  |
| 46               | 19              | 1             | 1               | 33               | 13              | 45      | 22              | 9             | 1               | 118           | 16              | 49              | 0               | 32            | 0               |                  |      |                          |  |
| 42               | 19              | 0             | 6               | 14               | 0               | 31      | 17              | 18            | 4               | 70            | 7               | 35              | 6               | 23            | 1               |                  |      |                          |  |
| —                | —               | —             | —               | —                | —               | —       | —               | —             | —               | —             | —               | —               | —               | —             | —               |                  |      |                          |  |
| 123              | 63              | 1             | 7               | 85               | 17              | 158     | 50              | 59            | 14              | 307           | 37              | 125             | 15              | 125           | 1               | 2783             | 675  |                          |  |
| —                | —               | —             | —               | —                | —               | —       | —               | —             | —               | —             | —               | —               | —               | —             | —               |                  |      |                          |  |
| 487              | 320             | 10            | 22              | 313              | 117             | 553     | 200             | 351           | 177             | 776           | 304             | 349             | 54              | 327           | 35              |                  |      |                          |  |

... 8,953  
 ... 4,852  
 ... 13,805

*No. IV.—Percentage of Fevers and other Diseases on the population of each Thannah.*

| THANNAHS.     | Fevers. | Other Diseases. | REMARKS.                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---------------|---------|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Kotwallce,... | 1.52    | 0.89            | The land around Saharanpore is cultivated throughout. It used to be extensively irrigated from the canal; but since last year the rice cultivation has been stopped for a radius of three miles round the city, and the canal water is now chiefly taken during the rubbee crop. In the vicinity of the city, besides the khadir lands of the Damoodce and Pandoe nuddees, there are numerous swamps, indifferently drained. |
| Keroe, ...    | 0.89    | 1.62            | No canal irrigation; much of the thannah rugba is in the khadir of the Solance river. Very large tracts of tree and grass jungle cover the greater portion of the lands, intersected by numerous streams.                                                                                                                                                                                                                    |
| Behut, ...    | 0.94    | 0.75            | Very little canal irrigation. Several mountain torrents intersect the land of the town of Behut, and many of the villages around it. Extensive patches of cultivation, chiefly rubbee crops, interspersed among large tracts of tree jungle.                                                                                                                                                                                 |
| Nookur, ...   | 1.31    | 1.51            | No jungle. A little canal irrigation confined to the eastern portion. Some large jheels. The western portion has the khadir of the Jumna, and near the centre runs the Katha nuddee, but with no extensive khadir. A good deal of high land, well cultivated and watered from wells.                                                                                                                                         |
| Gungo, ...    | 1.21    | 0.31            | The chief portion of this thannah lies between the Jumna on the west, and Katha nuddee on the east. In this portion of the rugba, there is no canal irrigation. With the exception of the khadirs of the above two rivers, the land is high, and well cultivated. To the east of the Katha nuddee the land is thoroughly under the influence of canal irrigation. No jungle.                                                 |
| Chilkana, ... | 0.82    | 1.06            | Very little canal irrigation. Very large tracts of khadir land and swamps on the Jumna, Muskurra, and Nowgong rivers. A great deal of rice cultivation, the water being taken from the two latter rivers, which are dammed up for the purpose. Richly cultivated.                                                                                                                                                            |

| THANNAHS.     | Fevers. | Other Diseases. | REMARKS.                                                                                                                                                                                                                                                                                                                                |
|---------------|---------|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Bugwanpore,   | 0·36    | 0·29            | Richly cultivated throughout; high land; no jungle, no canal irrigation. No jheels of any extent. The Ganges canal passes through the lands of this thannah.                                                                                                                                                                            |
| Munglour, ... | 1·57    | 0·56            | No canal irrigation as yet. The Ganges Canal passes through the centre of this thannah. Land high and well cultivated; not much jungle.                                                                                                                                                                                                 |
| Jowalapore,   | 0·84    | 0·05            | Khadir of the Ganges; much dense tree and grass jungle, with numerous torrents. Thinly populated; no canal irrigation.                                                                                                                                                                                                                  |
| Hurdwar, ...  | 0·77    | 1·70            | Khadir of the Ganges. This thannah merely consists of the town of Hurdwar and the surrounding gardens.                                                                                                                                                                                                                                  |
| Sultanpore,   | 1·01    | 0·38            | Extensive tracts of unreclaimed forest; numerous large swamps; extensive khadir lands on the banks of the Ganges. Some large patches of forest have been reclaimed, and are under cultivation. No canal irrigation.                                                                                                                     |
| Nagul, ...    | 1·37    | 0·60            | No canal irrigation. Land high, and well cultivated throughout. No jungle or swamps.                                                                                                                                                                                                                                                    |
| Burgaon, ...  | 1·04    | 0·52            | This thannah lies between the Kirsumee river on the west, and the Hindun river on the east. Cultivated throughout. Not much forest, swamp, or jungle. No canal irrigation.                                                                                                                                                              |
| Rampore, ...  | 1·51    | 0·55            | The whole of the lands of this thannah are more or less under canal irrigation. The khadir of the Kissanee occupies a good deal of ground, and is covered with thick grass jungle. From the city of Rampore southward for upwards of twenty miles, is the <i>worst</i> part of the canal; a line of perennial swamp runs the whole way. |
| Runkundee,    | 0·62    | 0·09            | Lies south of the town of Deobund, and on the borders of Moozuffernuggur. Is cultivated throughout; not irrigated.                                                                                                                                                                                                                      |
| Deobund, ...  | 1·75    | 0·18            | High land; no irrigation, or jungle, or swamps of any extent. Highly cultivated.                                                                                                                                                                                                                                                        |

*No. V.—Deaths in each District, and in each month,*

|                        | <i>Kotwal-<br/>lee.</i> |                 | <i>Keree.</i> |                 | <i>Behut.</i> |                 | <i>Noo-<br/>kur.</i> |                 | <i>Gungo.</i> |                 | <i>Chil-<br/>kana.</i> |                 | <i>Bug-<br/>wan-<br/>pore.</i> |                 | <i>Mung-<br/>lour.</i> |                 |
|------------------------|-------------------------|-----------------|---------------|-----------------|---------------|-----------------|----------------------|-----------------|---------------|-----------------|------------------------|-----------------|--------------------------------|-----------------|------------------------|-----------------|
|                        | Small-pox.              | Other diseases. | Small-pox.    | Other diseases. | Small-pox.    | Other diseases. | Small-pox.           | Other diseases. | Small-pox.    | Other diseases. | Small-pox.             | Other diseases. | Small-pox.                     | Other diseases. | Small-pox.             | Other diseases. |
| January,               | 28                      | 229             | 30            | 26              | 19            | 76              | 16                   | 60              | 2             | 122             | 6                      | 74              | 0                              | 2               | 0                      | 34              |
| February,              | 15                      | 107             | 32            | 23              | 7             | 49              | 4                    | 40              | 2             | 80              | 10                     | 83              | 0                              | 5               | 0                      | 26              |
| March, ...             | 20                      | 136             | 74            | 32              | 23            | 65              | 26                   | 53              | 10            | 59              | 21                     | 30              | 0                              | 5               | 0                      | 35              |
| Total, 1st<br>Quarter, | 73                      | 472             | 136           | 79              | 49            | 190             | 46                   | 153             | 14            | 261             | 37                     | 187             | 0                              | 12              | 0                      | 95              |
| April, ...             | 58                      | 149             | 21            | 39              | 42            | 54              | 55                   | 33              | 26            | 53              | 45                     | 52              | 9                              | 8               | 2                      | 70              |
| May, ...               | 121                     | 115             | 118           | 23              | 56            | 77              | 72                   | 29              | 27            | 24              | 50                     | 80              | 31                             | 30              | 12                     | 75              |
| June, ...              | 116                     | 98              | 150           | 26              | 58            | 65              | 26                   | 7               | 42            | 44              | 21                     | 23              | 24                             | 20              | 4                      | 72              |
| Total, 2nd<br>Quarter, | 295                     | 362             | 269           | 88              | 156           | 196             | 154                  | 69              | 95            | 121             | 116                    | 155             | 64                             | 53              | 18                     | 217             |
| July, ...              | 91                      | 145             | 118           | 23              | 3             | 52              | 74                   | 40              | 18            | 43              | 0                      | 51              | 7                              | 31              | 2                      | 106             |
| August,...             | 50                      | 213             | 0             | 0               | 1             | 78              | 47                   | 53              | 33            | 157             | 34                     | 86              | 12                             | 42              | 4                      | 136             |
| Sept., ...             | 25                      | 279             | 3             | 46              | 1             | 96              | 7                    | 40              | 12            | 112             | 0                      | 89              | 0                              | 50              | 6                      | 271             |
| Total, 3rd<br>Quarter, | 166                     | 640             | 121           | 69              | 5             | 226             | 128                  | 133             | 63            | 312             | 34                     | 226             | 19                             | 123             | 12                     | 513             |
| October,               | 15                      | 187             | 6             | 42              | 0             | 54              | 10                   | 116             | 5             | 85              | 12                     | 70              | 44                             | 44              | 1                      | 234             |
| Novr., ...             | 20                      | 174             | 4             | 20              | 0             | 49              | 5                    | 59              | 6             | 91              | 32                     | 80              | 16                             | 35              | 0                      | 146             |
| Deer., ...             | 12                      | 151             | 0             | 14              | 0             | 65              | 11                   | 85              | 0             | 51              | 11                     | 59              | 0                              | 20              | 0                      | 94              |
| Total, 4th<br>Quarter, | 47                      | 507             | 10            | 76              | 0             | 168             | 26                   | 260             | 11            | 227             | 55                     | 209             | 60                             | 99              | 1                      | 524             |
| Total,...              | 531                     | 1981            | 536           | 312             | 210           | 780             | 354                  | 615             | 183           | 921             | 242                    | 888             | 143                            | 292             | 31                     | 1349            |

Total Small pox, ... ..

Total other Diseases, ... ..

Grand Total, ... ..

*from small-pox, compared with all other causes of Death.*

| Jowala-<br>pore. | Hurd-<br>war.   | Sellan-<br>pore. | Nagul.          | Bur-<br>gaon. | Ram-<br>pore.   | Runkun-<br>dee. | Deo-<br>bund.   | Total of small-pox. | Total of other diseases. |     |     |    |     |    |     |      |        |  |
|------------------|-----------------|------------------|-----------------|---------------|-----------------|-----------------|-----------------|---------------------|--------------------------|-----|-----|----|-----|----|-----|------|--------|--|
| Small-pox.       | Other diseases. | Small-pox.       | Other diseases. | Small-pox.    | Other diseases. | Small-pox.      | Other diseases. | Small-pox.          | Other diseases.          |     |     |    |     |    |     |      |        |  |
| 18               | 38              | 0                | 1               | 0             | 31              | 7               | 52              | 1                   | 33                       | 0   | 1   | 0  | 0   | 33 | 0   | 34   |        |  |
| 6                | 39              | 0                | 2               | 0             | 18              | 5               | 43              | 1                   | 24                       | 0   | 42  | 0  | 8   | 0  | 25  |      |        |  |
| 9                | 51              | 0                | 2               | 0             | 34              | 3               | 45              | 20                  | 40                       | 0   | 62  | 0  | 12  | 0  | 19  |      |        |  |
| 28               | 131             | 0                | 5               | 0             | 83              | 15              | 140             | 2                   | 97                       | 0   | 274 | 0  | 56  | 0  | 78  | 420  | 2,243  |  |
| 12               | 75              | 0                | 3               | 4             | 35              | 35              | 74              | 42                  | 37                       | 0   | 63  | 10 | 18  | 0  | 14  |      |        |  |
| 36               | 74              | 0                | 4               | 3             | 45              | 24              | 71              | 36                  | 24                       | 72  | 29  | 7  | 16  | 1  | 20  |      |        |  |
| 18               | 49              | 0                | 0               | 6             | 40              | 19              | 58              | 29                  | 17                       | 27  | 54  | 4  | 17  | 0  | 15  |      |        |  |
| 66               | 198             | 0                | 7               | 13            | 120             | 78              | 203             | 107                 | 78                       | 99  | 181 | 21 | 51  | 1  | 49  | 1552 | 2,153  |  |
| 12               | 79              | 0                | 6               | 8             | 21              | 12              | 27              | 3                   | 34                       | 9   | 42  | 3  | 8   | 0  | 30  |      |        |  |
| 16               | 33              | 0                | 4               | 2             | 43              | 13              | 78              | 6                   | 49                       | 18  | 89  | 12 | 43  | 0  | 34  |      |        |  |
| 10               | 47              | 0                | 2               | 2             | 33              | 3               | 82              | 4                   | 64                       | 11  | 83  | 0  | 69  | 1  | 43  |      |        |  |
| 38               | 169             | 0                | 12              | 12            | 100             | 28              | 187             | 13                  | 147                      | 38  | 214 | 15 | 120 | 1  | 107 | 693  | 3,289  |  |
| 16               | 44              | 0                | 0               | 2             | 40              | 9               | 81              | 5                   | 27                       | 3   | 131 | 0  | 50  | 0  | 65  |      |        |  |
| 19               | 46              | 0                | 2               | 9             | 37              | 12              | 55              | 0                   | 10                       | 3   | 131 | 0  | 49  | 0  | 32  |      |        |  |
| 12               | 49              | 0                | 6               | 0             | 14              | 11              | 40              | 2                   | 20                       | 1   | 76  | 6  | 35  | 1  | 28  |      |        |  |
| 47               | 139             | 0                | 8               | 11            | 91              | 32              | 176             | 7                   | 57                       | 7   | 337 | 6  | 134 | 1  | 125 | 321  | 3,137  |  |
| 179              | 625             | 0                | 32              | 36            | 394             | 153             | 706             | 149                 | 379                      | 144 | 936 | 42 | 361 | 3  | 359 | 2986 | 10,822 |  |

... 2,986

... 10,822

... 13,808

GEO. R. PLAYFAIR, M. D.

*No. VI.—Births in each District, and in*

|                        | <i>Kota-<br/>lar.</i> |          | <i>Keree.</i> |          | <i>Dehet.</i> |          | <i>Naowar.</i> |          | <i>Gungo.</i> |          | <i>Chit-<br/>kang.</i> |          | <i>Reg-<br/>rain-<br/>pore.</i> |          | <i>Mung-<br/>loor.</i> |          |
|------------------------|-----------------------|----------|---------------|----------|---------------|----------|----------------|----------|---------------|----------|------------------------|----------|---------------------------------|----------|------------------------|----------|
|                        | Males.                | Females. | Males.        | Females. | Males.        | Females. | Males.         | Females. | Males.        | Females. | Males.                 | Females. | Males.                          | Females. | Males.                 | Females. |
| January,               | 19                    | 18       | 3             | 15       | 109           | 46       | 6              | 32       | 60            | 52       | 51                     | 29       | 0                               | 0        | 12                     | 45       |
| February,              | 101                   | 82       | 21            | 20       | 66            | 45       | 49             | 31       | 47            | 23       | 50                     | 30       | 6                               | 4        | 41                     | 25       |
| March, ...             | 108                   | 67       | 14            | 8        | 81            | 50       | 50             | 25       | 45            | 18       | 45                     | 43       | 2                               | 2        | 56                     | 40       |
| Total, 1st<br>Quarter, | 378                   | 269      | 74            | 43       | 256           | 141      | 148            | 88       | 152           | 93       | 142                    | 102      | 8                               | 6        | 159                    | 112      |
| April, ...             | 101                   | 83       | 22            | 17       | 70            | 53       | 49             | 33       | 51            | 35       | 20                     | 26       | 6                               | 6        | 55                     | 50       |
| May, ...               | 95                    | 71       | 28            | 13       | 83            | 63       | 36             | 18       | 46            | 23       | 14                     | 9        | 12                              | 8        | 54                     | 42       |
| June, ...              | 83                    | 49       | 27            | 27       | 35            | 25       | 22             | 15       | 33            | 27       | 15                     | 14       | 10                              | 15       | 46                     | 44       |
| Total, 2nd<br>Quarter, | 279                   | 203      | 77            | 57       | 188           | 141      | 107            | 66       | 126           | 85       | 58                     | 48       | 28                              | 29       | 155                    | 135      |
| July, ...              | 114                   | 107      | 29            | 25       | 35            | 20       | 59             | 25       | 48            | 20       | 22                     | 20       | 12                              | 0        | 81                     | 41       |
| August, ...            | 152                   | 140      | 6             | 0        | 60            | 32       | 68             | 32       | 65            | 52       | 18                     | 15       | 14                              | 16       | 87                     | 45       |
| Sept., ...             | 166                   | 140      | 46            | 6        | 46            | 27       | 36             | 26       | 48            | 21       | 49                     | 34       | 19                              | 20       | 103                    | 81       |
| Total, 3rd<br>Quarter, | 432                   | 387      | 75            | 31       | 141           | 79       | 163            | 83       | 161           | 96       | 89                     | 78       | 45                              | 45       | 271                    | 167      |
| October,               | 18                    | 8        | 50            | 21       | 42            | 26       | 104            | 82       | 27            | 22       | 17                     | 21       | 9                               | 13       | 104                    | 82       |
| Novr., ...             | 181                   | 130      | 24            | 9        | 55            | 19       | 94             | 55       | 46            | 36       | 48                     | 39       | 19                              | 24       | 99                     | 47       |
| Decr., ...             | 156                   | 128      | 10            | 2        | 44            | 48       | 66             | 37       | 27            | 89       | 44                     | 24       | 12                              | 10       | 67                     | 56       |
| Total, 4th<br>Quarter, | 355                   | 266      | 84            | 32       | 141           | 88       | 264            | 174      | 100           | 88       | 109                    | 84       | 40                              | 47       | 270                    | 185      |
| Total, ...             | 1444                  | 1125     | 310           | 164      | 726           | 449      | 680            | 414      | 539           | 362      | 405                    | 312      | 121                             | 124      | 855                    | 600      |

Total Males, ...

Total Females, ...

Grand Total, ...

*each month during the year 1853.*

| <i>Jose-<br/>lapore.</i> | <i>Hurd-<br/>war.</i> | <i>Saltan-<br/>pore.</i> | <i>Nagul.</i> | <i>Bur-<br/>gaon.</i> | <i>Ram-<br/>pore.</i> | <i>Runkun-<br/>dec.</i> | <i>Deo-<br/>bund.</i> |                |          |
|--------------------------|-----------------------|--------------------------|---------------|-----------------------|-----------------------|-------------------------|-----------------------|----------------|----------|
| Males.                   | Females.              | Males.                   | Females.      | Males.                | Females.              | Males.                  | Females.              | Males.         | Females. |
| 76                       | 50                    | 0                        | 0             | 35                    | 21                    | 66                      | 44                    | 39             | 9        |
| 46                       | 49                    | 0                        | 1             | 36                    | 27                    | 62                      | 32                    | 53             | 23       |
| 84                       | 55                    | 0                        | 0             | 31                    | 37                    | 40                      | 16                    | 56             | 12       |
| 206                      | 153                   | 0                        | 1             | 105                   | 85                    | 168                     | 92                    | 145            | 47       |
| 81                       | 66                    | 0                        | 1             | 18                    | 15                    | 70                      | 51                    | 46             | 14       |
| 82                       | 48                    | 0                        | 0             | 46                    | 36                    | 49                      | 45                    | 35             | 22       |
| 47                       | 20                    | 0                        | 0             | 14                    | 21                    | 40                      | 26                    | 36             | 24       |
| 210                      | 144                   | 0                        | 1             | 78                    | 75                    | 159                     | 122                   | 117            | 60       |
| 80                       | 63                    | 0                        | 0             | 25                    | 29                    | 24                      | 23                    | 54             | 35       |
| 53                       | 39                    | 0                        | 0             | 30                    | 23                    | 65                      | 61                    | 24             | 8        |
| 55                       | 41                    | 0                        | 0             | 32                    | 14                    | 52                      | 49                    | 50             | 26       |
| 168                      | 143                   | 0                        | 0             | 87                    | 66                    | 141                     | 133                   | 128            | 69       |
| 55                       | 35                    | 1                        | 1             | 26                    | 11                    | 83                      | 73                    | 26             | 17       |
| 55                       | 41                    | 0                        | 0             | 20                    | 22                    | 65                      | 31                    | 22             | 1        |
| 53                       | 45                    | 0                        | 0             | 28                    | 16                    | 83                      | 81                    | 21             | 18       |
| 163                      | 121                   | 1                        | 1             | 74                    | 49                    | 233                     | 198                   | 69             | 36       |
| 767                      | 561                   | 1                        | 3             | 344                   | 265                   | 699                     | 545                   | 459            | 212      |
| 701                      | 421                   | 312                      | 164           | 107                   | 80                    | 8,470                   | 5,801                 |                |          |
| Total Males.             |                       |                          |               |                       |                       |                         |                       | Total Females. |          |

... 8,470  
 ... 5,801  
 ... 14,271

GEO. R. PLAYFAIR, M. D.



## No. VII.—Deaths in each month

|                        | Kotwal-<br>lee. |          | Keree. |          | Behut. |          | Nookur. |          | Gungo. |          | Chil-<br>kana. |          | Bug-<br>wan-<br>pore. |          | Mung-<br>lour. |          |
|------------------------|-----------------|----------|--------|----------|--------|----------|---------|----------|--------|----------|----------------|----------|-----------------------|----------|----------------|----------|
|                        | Males.          | Females. | Males. | Females. | Males. | Females. | Males.  | Females. | Males. | Females. | Males.         | Females. | Males.                | Females. | Males.         | Females. |
| January,               | 138             | 129      | 43     | 11       | 72     | 23       | 48      | 28       | 65     | 59       | 37             | 43       | 1                     | 1        | 19             | 15       |
| February,              | 71              | 51       | 34     | 21       | 29     | 27       | 32      | 12       | 54     | 28       | 52             | 41       | 3                     | 2        | 17             | 9        |
| March, ...             | 87              | 69       | 67     | 39       | 50     | 38       | 44      | 35       | 41     | 28       | 30             | 21       | 4                     | 1        | 21             | 14       |
| Total, 1st<br>Quarter, | 296             | 249      | 144    | 71       | 151    | 88       | 124     | 75       | 160    | 115      | 119            | 105      | 8                     | 4        | 57             | 33       |
| April,                 | 123             | 84       | 32     | 28       | 60     | 36       | 47      | 42       | 55     | 24       | 46             | 51       | 11                    | 6        | 45             | 27       |
| May,                   | 151             | 85       | 84     | 57       | 76     | 57       | 65      | 36       | 32     | 19       | 78             | 52       | 36                    | 25       | 46             | 41       |
| June,                  | 118             | 96       | 87     | 69       | 73     | 50       | 20      | 13       | 44     | 42       | 23             | 21       | 28                    | 16       | 42             | 34       |
| Total, 2nd<br>Quarter, | 392             | 265      | 203    | 54       | 209    | 143      | 132     | 91       | 131    | 85       | 147            | 124      | 75                    | 47       | 133            | 102      |
| July, ...              | 116             | 123      | 84     | 57       | 31     | 24       | 67      | 47       | 42     | 19       | 23             | 28       | 25                    | 13       | 60             | 48       |
| August,                | 136             | 127      | 0      | 0        | 36     | 43       | 59      | 41       | 105    | 85       | 88             | 32       | 35                    | 19       | 90             | 50       |
| September, ...         | 148             | 156      | 31     | 18       | 53     | 44       | 22      | 25       | 74     | 50       | 44             | 45       | 25                    | 25       | 161            | 116      |
| Total, 3rd<br>Quarter, | 400             | 406      | 115    | 75       | 120    | 111      | 148     | 113      | 221    | 154      | 155            | 105      | 85                    | 57       | 311            | 214      |
| October,               | 104             | 93       | 23     | 25       | 26     | 28       | 79      | 47       | 41     | 49       | 49             | 33       | 47                    | 41       | 153            | 129      |
| November, ...          | 107             | 87       | 15     | 9        | 25     | 24       | 42      | 22       | 53     | 44       | 60             | 52       | 26                    | 25       | 88             | 53       |
| December, ...          | 84              | 79       | 6      | 8        | 40     | 25       | 60      | 36       | 34     | 17       | 40             | 30       | 11                    | 9        | 53             | 41       |
| Total, 4th<br>Quarter, | 295             | 259      | 44     | 42       | 91     | 77       | 181     | 105      | 128    | 110      | 149            | 115      | 84                    | 75       | 297            | 223      |
| Total, ..              | 1333            | 1179     | 506    | 342      | 571    | 419      | 535     | 384      | 640    | 464      | 570            | 449      | 252                   | 183      | 798            | 582      |

Total Males, ...  
Total Females, ...

Grand Total, ...

during the year 1853.

| Jowalapore |          | Hurdwar |          | Sultanpore |          | Nagul  |          | Burgaon |          | Ram-pore |          | Runkun-dee |          | Deotund |          | Total Males. | Total Females. |
|------------|----------|---------|----------|------------|----------|--------|----------|---------|----------|----------|----------|------------|----------|---------|----------|--------------|----------------|
| Males.     | Females. | Males.  | Females. | Males.     | Females. | Males. | Females. | Males.  | Females. | Males.   | Females. | Males.     | Females. | Males.  | Females. |              |                |
| 33         | 18       | 1       | 0        | 20         | 11       | 33     | 26       | 22      | 12       | 71       | 29       | 19         | 17       | 24      | 10       |              |                |
| 25         | 20       | 2       | 0        | 9          | 9        | 30     | 18       | 17      | 8        | 30       | 12       | 5          | 3        | 12      | 13       |              |                |
| 40         | 23       | 2       | 0        | 23         | 11       | 35     | 13       | 38      | 22       | 42       | 20       | 7          | 5        | 9       | 10       |              |                |
| 98         | 61       | 5       | 0        | 52         | 31       | 98     | 57       | 77      | 42       | 143      | 61       | 31         | 25       | 45      | 33       | 1608         | 1055           |
| 45         | 42       | 1       | 2        | 26         | 13       | 59     | 50       | 48      | 31       | 42       | 26       | 15         | 13       | 7       | 7        |              |                |
| 67         | 43       | 3       | 1        | 29         | 19       | 55     | 40       | 42      | 18       | 66       | 35       | 13         | 10       | 14      | 7        |              |                |
| 43         | 25       | 0       | 0        | 27         | 19       | 48     | 29       | 25      | 21       | 62       | 49       | 16         | 5        | 11      | 4        |              |                |
| 154        | 110      | 4       | 3        | 82         | 51       | 162    | 119      | 115     | 70       | 170      | 110      | 44         | 28       | 32      | 18       | 2185         | 1520           |
| 56         | 35       | 6       | 0        | 16         | 16       | 19     | 20       | 22      | 15       | 35       | 16       | 5          | 6        | 17      | 13       |              |                |
| 26         | 23       | 2       | 2        | 22         | 23       | 47     | 44       | 25      | 30       | 69       | 38       | 31         | 24       | 14      | 20       |              |                |
| 32         | 26       | 2       | 0        | 23         | 12       | 44     | 41       | 44      | 24       | 57       | 37       | 46         | 23       | 24      | 20       |              |                |
| 114        | 84       | 10      | 2        | 61         | 51       | 110    | 105      | 91      | 69       | 161      | 91       | 82         | 53       | 55      | 53       | 2239         | 1743           |
| 41         | 19       | 0       | 0        | 21         | 21       | 36     | 54       | 19      | 13       | 78       | 55       | 36         | 14       | 33      | 32       |              |                |
| 37         | 28       | 2       | 0        | 24         | 22       | 33     | 34       | 9       | 1        | 84       | 50       | 30         | 19       | 14      | 18       |              |                |
| 39         | 22       | 6       | 0        | 9          | 5        | 26     | 25       | 18      | 4        | 39       | 38       | 25         | 16       | 17      | 12       |              |                |
| 117        | 69       | 8       | 0        | 54         | 48       | 95     | 113      | 46      | 18       | 201      | 143      | 91         | 49       | 64      | 62       | 1945         | 1513           |
| 483        | 324      | 27      | 5        | 249        | 181      | 465    | 394      | 329     | 199      | 675      | 405      | 248        | 155      | 196     | 166      | 7977         | 5831           |

... 7,977  
 ... 5,831  
 ... 13,808

GEO. R. PLAYFAIR, M. D.

## No. VIII.—Births in each Caste in each month of the year 1853.

|                             | Mahomedan. |          | Hindoo. |          | Low Caste. |          | Grand Total<br>in each Quarter. | REMARKS.                                                                                                                |
|-----------------------------|------------|----------|---------|----------|------------|----------|---------------------------------|-------------------------------------------------------------------------------------------------------------------------|
|                             | Males.     | Females. | Males.  | Females. | Males.     | Females. |                                 |                                                                                                                         |
| January,                    | 280        | 180      | 415     | 228      | 157        | 111      |                                 |                                                                                                                         |
| February,                   | 176        | 127      | 327     | 209      | 124        | 94       |                                 |                                                                                                                         |
| March,                      | 167        | 142      | 387     | 181      | 136        | 98       |                                 | 14,122 Single births, ... 14,122                                                                                        |
| Total, 1st Quarter,         | 623        | 449      | 1,129   | 617      | 417        | 303      | 3,538                           | 73 Twins, ... 146                                                                                                       |
| April,                      | 185        | 139      | 365     | 242      | 148        | 121      |                                 | 1 Triplet, ... 3                                                                                                        |
| May,                        | 187        | 119      | 328     | 206      | 125        | 93       |                                 | 14,196 Women, ... 14,271 Children.                                                                                      |
| June,                       | 126        | 93       | 248     | 172      | 105        | 95       |                                 |                                                                                                                         |
| Total, 2nd Quarter,         | 498        | 351      | 941     | 620      | 378        | 309      | 3,097                           |                                                                                                                         |
| July,                       | 190        | 134      | 292     | 186      | 156        | 141      |                                 | 1 Woman in 194 had Twins.                                                                                               |
| August,                     | 216        | 169      | 379     | 222      | 175        | 176      |                                 | 1 " in 14,196 had Triplets.                                                                                             |
| September,                  | 241        | 177      | 414     | 239      | 181        | 147      |                                 |                                                                                                                         |
| Total, 3rd Quarter,         | 647        | 470      | 1,085   | 647      | 512        | 464      | 3,825                           | In European Medical Statistics, the proportion of twins and triplets is variously given.                                |
| October,                    | 174        | 123      | 335     | 219      | 160        | 134      |                                 | In the "Dublin Maternity Hospital," there was one case of twins to every 58 births; 1                                   |
| November,                   | 237        | 196      | 400     | 214      | 199        | 137      |                                 | case of triplets in 5,050 births. This proportion is however much higher than in any other British or Foreign Hospital. |
| December,                   | 211        | 173      | 368     | 233      | 156        | 142      |                                 |                                                                                                                         |
| Total, 4th Quarter,         | 622        | 492      | 1,103   | 666      | 515        | 413      | 3,811                           |                                                                                                                         |
| Total of each sex,          | 2,390      | 1,762    | 4,258   | 2,550    | 1,822      | 1,489    |                                 | In the "Maison d' Accouchement" in Paris—                                                                               |
| Total of each Caste,        | 4,152      |          | 6,808   |          | 3,311      |          |                                 | Twins, once in ... 85                                                                                                   |
| Grand Total, Males—Females, | 8,470      |          | 5,801   |          |            |          |                                 | Triplets, once in ... 7,574                                                                                             |
| Total born in 1853,         |            |          | 14,271  |          |            |          |                                 |                                                                                                                         |

GEO. R. PLAYFAIR, M. D.

*No. IX.—Deaths in each Caste in each month of the year 1853.*

|                                    | Mahomedan. |          | Hindoo. |          | Low Castes. |          | Grand Total in each Quarter. | REMARKS. |
|------------------------------------|------------|----------|---------|----------|-------------|----------|------------------------------|----------|
|                                    | Males.     | Females. | Males.  | Females. | Males.      | Females. |                              |          |
| January, ...                       | 183        | 136      | 330     | 205      | 113         | 91       |                              |          |
| February, ...                      | 123        | 83       | 215     | 126      | 84          | 65       |                              |          |
| March, ...                         | 154        | 94       | 262     | 162      | 124         | 93       |                              |          |
| Total, 1st Quarter,                | 460        | 313      | 807     | 493      | 341         | 249      | 2,663                        |          |
| April, ...                         | 156        | 139      | 333     | 205      | 173         | 138      |                              |          |
| May, ...                           | 219        | 160      | 420     | 228      | 218         | 157      |                              |          |
| June, ...                          | 219        | 177      | 281     | 194      | 166         | 122      |                              |          |
| Total, 2nd Quarter,                | 591        | 476      | 1,034   | 627      | 557         | 417      | 3,705                        |          |
| July, ...                          | 184        | 171      | 298     | 176      | 142         | 133      |                              |          |
| August, ...                        | 216        | 195      | 418     | 263      | 151         | 143      |                              |          |
| September, ...                     | 279        | 229      | 359     | 263      | 162         | 170      |                              |          |
| Total, 3rd Quarter,                | 679        | 595      | 1,105   | 702      | 455         | 446      | 3,982                        |          |
| October, ...                       | 251        | 178      | 365     | 321      | 173         | 154      |                              |          |
| November, ...                      | 167        | 159      | 353     | 233      | 129         | 101      |                              |          |
| December, ...                      | 155        | 102      | 257     | 177      | 95          | 88       |                              |          |
| Total, 4th Quarter,                | 573        | 439      | 975     | 731      | 397         | 343      | 3,458                        |          |
| Total of each Sex,                 | 2,306      | 1,823    | 3,921   | 2,553    | 1,750       | 1,455    |                              |          |
| Total of each Caste                | 4,129      |          | 6,174   |          | 3,205       |          |                              |          |
| Grand Total, }<br>Males—Females, } | 7,977      |          | 5,831   |          |             |          |                              |          |
| Total died in 1853,                |            |          | 13,808  |          |             |          |                              |          |

GEO. R. PLAYFAIR, M. D.

*No. X.—Proportion of Deaths amongst different Castes, in the following diseases, during 1853.*

|                   | Amongst.   |         |             | Total. | Deaths per cent. |                           | REMARKS.                                                         |
|-------------------|------------|---------|-------------|--------|------------------|---------------------------|------------------------------------------------------------------|
|                   | Mahomedan. | Hindoo. | Low Castes. |        | Hindoos.         | Mahomedan & other Castes. |                                                                  |
| Parturition, ...  | 21         | 27      | 14          | 62     | 0                | 0                         |                                                                  |
| Still-born—Boys,  | 25         | 52      | 16          | 93     | 0                | 0                         |                                                                  |
| Still-born—Girls, | 26         | 39      | 9           | 74     | 0                | 0                         |                                                                  |
| Cholera, ...      | 64         | 99      | 46          | 209    | 0.01             | 0.04                      |                                                                  |
| Fever, ...        | 2,699      | 4,218   | 2,040       | 8,957  | 0.75             | 1.93                      |                                                                  |
| Small-Pox, ...    | 839        | 1,330   | 816         | 2,985  | 0.26             | 0.67                      |                                                                  |
| Diarrhœa, ...     | 178        | 264     | 105         | 547    | 0.04             | 0.11                      |                                                                  |
|                   |            |         |             |        |                  |                           | Deaths in child-bed. Europe, 1 in 288. Saharun- } 1 in 227 pore, |

GEO. R. PLAYFAIR, M. D.

No. XI.—*Excess per cent. of Males, on the whole number born in Zillah Saharunpore during 1853.*

| THANNAHS.          | BIRTHS.         |          |                                    |          | <i>Excess of Male Births per cent., the excess in Europe being 3.</i> |                             |
|--------------------|-----------------|----------|------------------------------------|----------|-----------------------------------------------------------------------|-----------------------------|
|                    | <i>Hindoos.</i> |          | <i>Mahomedan and other Castes.</i> |          |                                                                       |                             |
|                    | Males.          | Females. | Males.                             | Females. | Hindoos.                                                              | Mahomedan and other Castes. |
| Kotwallee, ... ..  | 548             | 364      | 896                                | 761      | 20·17                                                                 | 8·14                        |
| Keree,... ..       | 329             | 205      | 397                                | 244      | 23·23                                                                 | 23·71                       |
| Behut, ... ..      | 121             | 62       | 189                                | 102      | 32·56                                                                 | 29·89                       |
| Nookur, ... ..     | 428             | 224      | 252                                | 190      | 31·28                                                                 | 14·02                       |
| Gungo, ... ..      | 318             | 158      | 221                                | 204      | 33·61                                                                 | 4·00                        |
| Chilkana, ... ..   | 142             | 112      | 263                                | 200      | 11·81                                                                 | 4·96                        |
| Bugwanpore,... ..  | 48              | 35       | 73                                 | 89       | 15·66                                                                 | 6·79                        |
| Munglour, ... ..   | 384             | 248      | 471                                | 352      | 21·51                                                                 | 14·45                       |
| Jowalapore, ... .. | 401             | 262      | 356                                | 299      | 20·96                                                                 | 10·07                       |
| Hurdwar, ... ..    | 1               | 3        | 0                                  | 0        | 0                                                                     | 0                           |
| Sultanpore, ... .. | 214             | 162      | 130                                | 113      | 13·82                                                                 | 6·99                        |
| Nagul,... ..       | 393             | 287      | 306                                | 248      | 15·58                                                                 | 10·46                       |
| Burgaon,... ..     | 319             | 123      | 135                                | 94       | 44·34                                                                 | 17·90                       |
| Rampore, ... ..    | 434             | 222      | 267                                | 199      | 32·31                                                                 | 14·59                       |
| Runkundee, ... ..  | 149             | 65       | 163                                | 99       | 39·25                                                                 | 24·42                       |
| Deobund, ... ..    | 29              | 18       | 78                                 | 62       | 23·61                                                                 | 11·42                       |

GEO. R. PLAYFAIR, M. D.

No. III.—*Letter from W. MUIR, Esq., Secretary to Government of the N. W. Provinces, to C. C. JACKSON, Esq., Commissioner of the Meerut Division, No. 1486 A, dated Head-quarters, the 19th August 1854.*

SIR,—I have the honor to acknowledge the receipt of your letter No. 106, dated the 7th instant, forwarding a report from the JUDICIAL DEPARTMENT. Magistrate of Saharunpore, with enclosed memorandum and statements prepared by the Civil Assistant Surgeon, Dr. Playfair, regarding the Medical Statistics of that district.

2nd.—The Lieutenant-Governor desires me in reply to state, that he much appreciates the zeal and interest with which Dr. Playfair has applied himself to the pre-

paration of these useful returns; and that, considering them to be of general value, and likely to conduce to the extension of similar enquiries elsewhere, His Honor will cause them to be printed, together with the Magistrate's transmitting letter, in an early number of the "*Selections from Public Correspondence*."

3rd.—Such statements, in so far as even their approximate accuracy can be depended upon, are peculiarly deserving of attention, with reference to the light which they may throw upon the prevalence of Female Infanticide. You are requested to instruct Mr. Ross to institute a close personal examination in regard to the condition of the villages, or groups of villages, in different parts of the district in which he may have any reason to apprehend the existence of this lamentable practice.

4th.—Mr. Ross will be aware, from the different documents which have been published on the subject, of the measures adopted in other quarters, with much success, for the suppression of the crime.

5th.—He will, during his tour in the ensuing cold season, ascertain in what parts of his district any course of precautionary measures may be called for, and arrange for the introduction of the measures he may think the most expedient, reporting the result for the consideration of the Government.

6th.—The Lieutenant-Governor will thankfully receive any continuation of the useful reports now submitted, which Dr. Playfair may find leisure and opportunity to prepare.

I have the honor to be, &c.,

W. MUIR,

*Secy. to Govt., N. W. P.*

**No. 6.**

**REPORT ON THE OPERATIONS OF THE AGRA MEDICAL SCHOOL DURING THE YEAR 1857-58.**

I.—*From J. MURRAY, Esq., M. D., Civil Surgeon, and Superintendent, Medical School, Agra, to W. MUIR, Esq., Secretary to Government of the North-Western Provinces, dated Agra, the 1st April, 1858.*

SIR,—I have the honor to report, for the information of the Right Hon'ble the Governor General, the completion of the third Sessions of the Agra Medical School.

2. The examination continued for three days. The questions were searching, and the answers creditable, more particularly those of the 1st or Senior Class.

3. I have been absent during the greater part of the year, viz., from the 27th April to 5th February; but the School has been under the able superintendence of Dr. T. Farquhar. The Hospital and School remained intact, in the midst of the surrounding anarchy which prevailed during the rebellion.

The Senior Sub-Assistant Surgeon, Wazeer Khan, a bigotted Wahabee, joined his co-religionists and mutinied; and almost all the Rohilcund Vaccinators, and a number of the junior students ran off—(see return No. I.) but nearly all the old students remained staunch. The Senior Class volunteered for service, and two of them went into the district with the Commissioner, as Native Doctors. Ushruff Ali, the junior Sub-Assistant Surgeon, was most zealous and loyal. The lectures were only interrupted for a few days. Those on Anatomy were delivered by Ushruff Ally, when his other duties prevented Dr. Lacy's attending. The course of lectures on the practice of medicine commenced by Wazeer Khan, was very satisfactorily continued and completed by Sub-Assistant Surgeon Bhola-nath Dass, who came from Bhurtpore on the 1st September and left to-day to rejoin his appointment.

4. The twelve students of the 1st Class have completed the proposed course of study of three years. They are fully qualified, both professionally and by steady attentive habits, to hold the appointment of Native Doctor. I would recommend their being admitted to the service as Native Doctors, on the same terms as to pay and pension as the 1st or Military Class in the Calcutta Medical College.

5. The two students who showed the greatest proficiency

A. No. 3, of 25th March 1856. From W. Muir, Esq., Secretary to Government, North-Western Provinces,—To J. Murray, Esq., Superintendent Medical School.

during the final examination, were Mohummud Yar Khan and Jankey Pershaud. I would recom-

mend them for the Government prizes of 50 Rs. sanctioned in the letter quoted in the margin.

6. The six Thomason Scholarships, and five given by the Lecturers and myself, have been gained by five students of the 2nd, and six of the 3rd Class, as shown in the accompanying return.

7. The entrance competition will be held on the 8th instant, when I propose admitting thirty students, should qualified candidates appear.

8. I anticipate some difficulties during the present season from the unsettled state of the country, and from losing the valuable assistance of Dr. Farquhar. Assistant Surgeon Alexander Christison, M. D., of the Gwalior Contingent, is well qualified to succeed him, and I would recommend his being appointed Superintendent of Vaccination, and Lecturer in the Medical School.

9. Sub-Assistant Surgeon Mokund Lall, of Allyghur, attended at the Hospital for some months, and showed considerable zeal and ability. I would recommend him and Shookoor Mohummud, (one of the newly passed Native Doctors) being appointed to the Thomason Hospital, to complete the establishment.

I have, &c., J. MURRAY,  
Civil Surgeon and Supdt. Medical School.  
*Agra, the 1st April, 1858.*



## No. 1.

*Return of Students attending the Medical School at Agra  
during the season 1857-58.*

*Dated Agra, 1st April, 1858.*

|                                     | Present on the 6th April, 1857. | Left the School. | Present on the 1st April, 1858. | REMARKS.                                                          |
|-------------------------------------|---------------------------------|------------------|---------------------------------|-------------------------------------------------------------------|
| Students of the 3rd year, ...       | 15                              | 6                | 12                              | { 1 Died.<br>1 Made Native Doctor.<br>2 Dismissed.<br>2 Run away. |
| Students of the 2nd year, ...       | 15                              | 7                | 8                               | { 2 Dismissed.<br>5 Run away.                                     |
| Students admitted, 6th April, 1857, | 33                              | 19               | 14                              | 1 Dismissed.                                                      |
| Students admitted during the year,  | 17                              | 4                | 13                              |                                                                   |
| Vaccinators from Rohilkund, ...     | 23                              | 20               | 3                               | } Absent on duty.                                                 |
| Vaccinators from Agra, ...          | 11                              | 3                | 8                               |                                                                   |
| Total, ...                          | 117                             | 59               | 58                              |                                                                   |

JOHN MURRAY,

*Civil Surgeon,  
Superintendent Medical School.*

## No. 2.

*Nominal Return of the Students of the Medical School  
at Agra, for the Session 1857-58.*

*Agra, 1st April, 1858.*

| No. | NAMES.               | Materia Medica and<br>Chemistry. | Anatomy and Surgery. | Practice of Medicine. | Total. | REMARKS.                  |
|-----|----------------------|----------------------------------|----------------------|-----------------------|--------|---------------------------|
|     | 1st CLASS.           | 112                              | 108                  | 100                   | 320    |                           |
| 1   | Mahomed Yar Khan,    | 107                              | 99                   | 88                    | 294    | 1st Government prize.     |
| 2   | Jankey Pershand, ... | 109                              | 95                   | 77                    | 281    | 2nd Ditto.                |
| 3   | Roop Singh, ... ..   | 106                              | 81                   | 86                    | 276    |                           |
| 4   | Pyary Lall, ... ..   | 105                              | 98                   | 69                    | 272    |                           |
| 5   | Shookoor Mahomed,    | 98                               | 95                   | 79                    | 272    |                           |
| 6   | Hoosain Ally, ... .. | 95                               | 100                  | 75                    | 270    |                           |
| 7   | Soondur Lall, ... .. | 99                               | 90                   | 77                    | 266    |                           |
| 8   | Ruheem Khan, ... ..  | 96                               | 96                   | 73                    | 265    |                           |
| 9   | Goree Lall, ... ..   | 96                               | 91                   | 66                    | 256    |                           |
| 10  | Pirbhoo Lall, ... .. | 96                               | 87                   | 61                    | 244    |                           |
| 11  | Munram Singh, ... .. | 92                               | 85                   | 63                    | 240    |                           |
| 12  | Heera Lall, ... ..   | 88                               | 62                   | 61                    | 209    |                           |
|     | 2ND CLASS.           |                                  |                      |                       |        |                           |
| 13  | Buttook Pershand,... | 106                              | 103                  | 74                    | 283    | 1st Thomason Scholarship. |
| 14  | Kanya Lall, ... ..   | 104                              | 104                  | 67                    | 275    | 2nd ditto ditto.          |
| 15  | Bala bux, ... ..     | 77                               | 99                   | 82                    | 268    | 3rd ditto and Bholanauth. |
| 16  | Kalka Pershand, ...  | 102                              | 80                   | 74                    | 256    | 4th ditto.                |
| 17  | Jehangeeree Lall,... | 82                               | 74                   | 77                    | 233    |                           |
| 18  | Kalka Doss, ... ..   | 85                               | 70                   | 70                    | 225    |                           |
| 19  | Aga Meer, ... ..     | 66                               | 70                   | 54                    | 190    |                           |
| 20  | Lall Mahomed, ... .. | 61                               | 60                   | 60                    | 181    |                           |

## 236 SELECTIONS FROM THE RECORDS OF GOVERNMENT.

| No.        | NAMES.                  | Materia Medica and<br>Chemistry. | Anatomy. | Total. | REMARKS.                  |
|------------|-------------------------|----------------------------------|----------|--------|---------------------------|
| 3RD CLASS. |                         |                                  |          |        |                           |
| 21         | Gunesh Roy, ... ..      | 100                              | 41       | 141    | 5th Thomason Scholarship. |
| 22         | Kurreeem Bux, ... ..    | 86                               | 47       | 133    | 6th Ditto.                |
| 23         | Emamooddeen, ... ..     | 79                               | 46       | 125    | Dr. Murray's ditto.       |
| 24         | Elahee Bux, ... ..      | 78                               | 40       | 118    | Dr. Lacy's ditto.         |
| 25         | Moorlee Dhur, ... ..    | 79                               | 38       | 117    | Dr. Farquhar's ditto.     |
| 26         | Kasim Khan, ... ..      | 71                               | 42       | 113    | Meer Ashruf Ally's ditto. |
| 27         | Mahomed Khan, ... ..    | 64                               | 43       | 107    |                           |
| 28         | Baboo Khan, ... ..      | 74                               | 29       | 103    |                           |
| 29         | Dowlut Ram, ... ..      | 67                               | 36       | 103    |                           |
| 30         | Uchebur Lall, ... ..    | 62                               | 38       | 100    |                           |
| 31         | Chotey Lall, ... ..     | 58                               | 39       | 97     |                           |
| 32         | Ramadhin, ... ..        | 45                               | 36       | 81     |                           |
| 33         | Zoolficar Ally, ... ..  | 34                               | 39       | 73     |                           |
| 34         | Ultauf Ally, ... ..     | 29                               | 37       | 66     |                           |
| 35         | Shahadut Ally, ... ..   | 39                               | 26       | 65     |                           |
| 36         | John Thomas, ... ..     | 19                               | 44       | 63     |                           |
| 37         | Bundey Ally Khan, ...   | 7                                | 26       | 33     |                           |
| 38         | Narain Doss, ... ..     | 35                               | 16       | 51     |                           |
| 39         | Shakespear Domingo, ... | 4                                | 0        | 4      | } Admitted recently.      |
| 40         | Emmanuel Paul, ... ..   | 9                                | 21       | 30     |                           |
| 41         | Wazeer Khan, ... ..     | 2                                | 0        | 2      |                           |
| 42         | Samuel Watts, ... ..    | 0                                | 0        | 0      |                           |
| 43         | J. Avade, ... ..        | 0                                | 0        | 0      |                           |
| 44         | Mukhun Lall, ... ..     | 0                                | 0        | 0      |                           |
| 45         | Bhujjoo, ... ..         | 0                                | 0        | 0      |                           |
| 46         | Najeeb Khan, ... ..     | 0                                | 0        | 0      |                           |
| 47         | E. Crawford, ... ..     | 0                                | 0        | 0      |                           |

(Signed)

JOHN MURRAY,

*Civil Surgeon,  
Superintendent, Medical School.*

II.—*From T. FARQUHAR, ESQ., M. D., late Lecturer on Surgery and Officiating Superintendent Medical School, to J. MURRAY, ESQ., M. D., Superintendent, dated Allahabad, the 20th April, 1858.*

SIR,—According to your desire, I send you a short account of the Medical School, the charge of which you made over to me at the end of April, 1857.

The facts of principal interest are connected with the behaviour of lecturers and students during the time of the mutiny, when the other institutions in Agra, and most of those in the North-Western Provinces, were destroyed.

Everything went on as when you left us, till the 11th of May, when we were disturbed by the accounts of the Meerut mutinies.

With the exception however of the lectures on anatomy, which stopped at once, and subsequently the lectures on the practice of physic, the other lectures, attendance at Hospital, and dispensaries, went on with their accustomed regularity, up to within a few days before the 5th of July.

By this we endeavoured to show our confidence in the strength and stability of Government, and our desire to be accounted loyal subjects.

A number of vaccinators who, a week or two before, had come over from Rohilcund, to attend the Medical classes during the hot season, on hearing of the mutinies there, became alarmed for the safety of their homes, and left. One was murdered on the road, and several of the rest were plundered and beaten.

Three of them remained, as also all the vaccinators of the Agra division, and were regular in their attendance, and civil and respectful in their behaviour.

The chief and almost only source of regret and disappointment was the behaviour of Wazcer Khan, Senior Sub-Assistant Surgeon, who was in charge of the civil dispensaries in Agra, and lecturer on the Practice of Physic. Some years before he was known to have had some

communication with a wandering Fugceer who came under the suspicion of Government ; this, and his long indulged fanatical opposition to Christianity, made him feel, what he in reality was, a suspected man.

He was sent out of Agra by the Magistrate, in the belief that he was engaged in some mischief, and in the hope that he would, when separated from his party in the city, keep himself from treason. He returned to Agra on the 2nd or 3rd of July, and three days after the battle of the 5th of July, on hearing that he was to be apprehended, he fled with his family to Delhie. There, on the day of the assault, it is said he was wounded by a musket-shot, in the shoulder, and ultimately passed down with the rebel army into Oude.

This example of Wuzceer Khan's was the severest trial the loyalty and good feeling of the students had to withstand, for being a shrewd intelligent man, he had great influence over their minds.

They however found a rallying point, and guidance, in the strength of mind of Ushraaf Ali, Sub-Assistant Surgeon, and lecturer on Materia Medica.

Up to the 5th of July, he was constant in his attendance at the Dispensary and Hospital, of which latter he had charge, and carried on his lectures regularly. On the disturbances occurring in the city, on the 5th, he remained at his home for a day or two, when he came back to take charge of the students, to lecture, and carry on the Hospital duties.

Afterwards he was never absent, but lectured daily, and completed his course of Materia Medica, before the end of the year.

On the 1st of January of this year he commenced a course on Chemistry, the greater part of which has been published.

In addition he gave lectures on anatomy to the junior students.

The success of his teaching, in all of these branches, you have yourself tested in the examinations just concluded.

In his private conduct during the past eight months, he has always shown the best feeling, and gained the esteem of all who have come in contact with him.

In the month of September, Bholanath Doss, Sub-Assistant Surgeon, was appointed from Bhurtpoor, as lecturer on Practice of Physic, in room of Wuzcer Khan, and, as Senior Sub-Assistant Surgeon, he took charge of the Thomason Hospital, and paid some attention to the branch dispensaries.

He was regular in his lectures throughout the winter season, and the fruit of his labour you see in the Syllabus of his lectures, which has been printed, and forms a respectable work on the Practice of Physic.

Doctor Lacy, from over excess of work, and other causes, was unable to recommence his lectures on anatomy till the end of January, and having received a good supply of subjects, he has given full attention to the dissecting room.

From the same extra amount of work connected with the Civil Station duties, I too was unable to lecture so regularly and frequently as I wished, but continued the daily superintendence of the students and Hospital with little interruption.

Of the conduct of the students it would be gratifying to speak at some length, but I will confine the remarks to the more prominent events.

In May a considerable amount of uneasiness was felt in the city and station at the prospect of a descent of the mutineer force from Delhie, and the consequent rising of the evil disposed in the city of Agra.

Of these feelings the Medical students became of course aware, and a number of them coming down to your house would barely allow their offer of guarding it by night to be refused.

Frequently they asked for arms, particularly when there was a rumour of the near approach of a rebel force. On the 5th of July, when the enemy came and raised the city, they stood by the Thomason Hospital, and armed with sticks, protected the few remaining sick, and prevented the mob from coming near the building to destroy it, or its medical stores and furniture.

A few sheets and blankets were carried off by the Police, when they deserted the Magistrate's Ward of the Hospital, and some of the patients carried off their bed-clothing, but beyond this no injury of property was sustained.

Your Medical library, which you spoke of presenting to the Medical School, I sent down from your house to the Hospital for safety, a few days before the 5th of July: this was also preserved intact.

They protected a lunatic Christian half-caste drummer boy, who was in Hospital on the day of the outbreak. Two of their number likewise rescued a Native Christian, who had remained in his house in the city, and whose life was sought by the fanatic mob. They escorted him safe through, and out of the city, and put him on the Gwalior road, along which he travelled in safety to his friends in that city.

Nor were they wanting in service to the Government. One of them, Soondur Lall, whom you had sent to Khyr Chandons, to assist in treating a bad form of fever that occurred there, remained at his post for several weeks after the mutiny broke out, and on being obliged to leave, was beaten and robbed by the Goojurs, on the road to Agra, near which I met him in rags.

Shortly after the mutiny began, two Native Doctors were required for the Bhurtpoor troops, and others at Muttra, under the Commissioner Mr. Harvey. As there were no others available, the Medical School was applied to, and the whole of the Senior class volunteered to go.

From these I selected Shookoor Mahommud and Mahomed Yar Khan, who remained with the force till the desertion of the Bhurtpoor troops, when they returned to Agra.

Two others, Ruheem Khan and Sheo Balik, afterwards joined the Kerowlic levies, and returned to Agra on these being sent to their homes.

In their general conduct the students seemed to be aware of the propriety of behaving with more than ordinary care, so that I was obliged to punish by fine only twice during the ten past months.

The mode in which instruction was conveyed, was by the use of a printed Syllabus of each subject.

From four to six pages of lithographed lectures were given after every lecture into the hands of each of the students. At the next meeting this was read out, paragraph by paragraph, by the students in turn; they then had to explain in their own words the meaning of what was written, and to answer questions on any collateral subjects that the text might suggest.

The amount of information and fine writing were not given which our home courses of lectures supply, but by condensing the useful matter, and keeping the attention of the whole class thoroughly engaged by continued cross-questions, we knew we conveyed our meaning to their minds, and felt sure no other plan could more effectually convey a knowledge of the subject to the class of students we have.

During this time they have attended a course of lectures on:—

The Principle and Practice of Physic.

The Principles and Practice of Surgery.

Materia Medica.

Chemistry, and

Anatomy.

They have also each taken away with them in the vernacular, a Treatise on Surgery by Dr. Farquhar; Practice



of Physic by Bholanath Doss; and Chemistry by Ushruf Ally; prepared expressly for their use, and of which future years will see, I trust, more finished editions.

They have had a full supply, since the beginning of the year, of subjects for dissection, and have been made to perform surgical operations themselves on the dead body.

They have attended as dressers and clinical Clerks on the patients in the Thomason Hospital, and have been required to keep the cases of the patients.

As one of your fundamental objects in the education of the students was that they should have a knowledge of the medicines found in the bazaar, a collection of upwards of three hundred specimens has been made, and a register prepared in which the known and supposed qualities of the drug are to be entered. This in the course of time, will, I trust, be a valuable addition to medicine in India and in Europe, and enable our students to practice their profession successfully among their own people. On the 30th of November, the sanction of Government was given for the admission of twenty Christian young men as medical students. Some eight or ten came forward, and, having passed the usual entrance examination, were admitted as students.

I have, &c.,

THOMAS FARQUHAR,

*Late Lecturer on Surgery and Offg. Supdt.  
Agra Medical School.*

*Allahabad, the 20th April, 1858.*

III.—From W. MUIR, Esq., Secretary to the Government of the North-Western Provinces, to J. MURRAY, Esq., in reply, dated Allahabad, the 3rd May, 1858.

SIR,—Having laid before the Right Hon'ble the Governor General your letter No. 21, dated 1st April, being the annual report on the Thomason Hospital and Medical School for 1857, I

am directed to express His Lordship's gratification at the success which has attended the proceedings in a year of so much difficulty.

2. His Lordship's thanks are specially due to Dr. Farquhar who was in charge of the Institution during the greater part of the year, and to whose unremitting exertions the maintenance of its prosperity during the prevalence of disorder is mainly attributable.

3. The conduct of the Sub-Assistant Surgeons, Ushruf Ally and Bholanath Doss, likewise entitles them to much commendation.

4. The numbers gained at the final examination by the senior class are satisfactory, and indicate high proficiency.

5. The two prizes of 50 each are awarded by His Lordship, as recommended, to Mahommud Yar Khan and Jankey Pershaud.

6. The Governor General approves the proposal to depute them to Dumoh and Mundlah, as Native Doctors, in charge of those stations. On the question of their salary and rank, the Director General, Medical Department, will be consulted.

7. The opinion of the Director General will also be invited on the proposal to appoint Mokund Lall, Sub-Assistant Surgeon of Allyghur, and Shookoor Mahommud to the Hospital, and also upon the general suggestion of admitting the passed students of the 1st class into the service, as Native Doctors, on the footing of the first Military Class.

8. The services of Assistant Surgeon A. Christison, M. D., will be asked for from the Military Department, in order that he may be appointed to the vacancy caused by Dr. Farquhar's transfer to the Allahabad Central Jail.

I have, &c.,

W. MUIR,

*Secretary to Govt., N. W. Provinces:  
Allahabad, the 3rd May, 1858.*

**No. 7.**

**REPORT ON THE AGRA MEDICAL SCHOOL.**

*By DR. G. R. PLAYFAIR, Superintendent of the Medical School at Agra, dated 25th April, 1859.*

1. The original object of the School was to educate Native Doctors, capable of taking charge of branch Dispensaries and other civil appointments open to that class.

2. In addition to this, the original intention of the Institution, the students of the Agra School are now expected to supply the demand in the North-Western Provinces for 1st class Native Doctors, similar to those hitherto taught only in the Military Class of the Calcutta College.

3. The candidates are admitted on exhibiting sufficient proficiency in reading and writing Oordoo, Hindce, or Oordoo in the Roman Character. Hitherto such candidates have been admitted at any time, although nominally the examinations were held on the 1st November and 1st April of each year. This irregularity arose from there having been a scarcity of applicants for admission.

4. The course of Study extends over three years.

5. There are two Sessions, viz. :—

1st April to 30th September, (6 months.)

1st November to early in March, (little more than 4 months.)

6. There are examinations to test the progress of the students at the close of each Session, but the final examination to admit Native Doctors into the service takes place only in March.

7. The School has a Superintendent, Doctor Playfair; two European Lecturers, Surgeon Lacy and Assistant Surgeon Christison; two Native Lecturers, Ushruf Ally, and Mokund Lall, Sub-Assistant Surgeons; and two Native Doctors, who are assistants to the Anatomy and Materia Medica Classes.

The subjects taught are :—

Anatomy, (in both Sessions) Doctor Lacy.

Surgery, (in summer Session) Doctor Christison..

Practice of Physic, (in both Sessions) Ushruf Ally.

Materia Medica, (Summer Sessions) Mokund Lall.

Chemistry, (Winter Session) Ditto.

To these I have added a Winter course on Military and Practical Surgery, by the Superintendent.

8. I believe the efficiency of the School will be much increased by some change in the above arrangements; and the modifications I propose, with my reasons for them, are as follows :—

a.—From admissions to the School having been permitted at all times of the year, there is a great deal of confusion as to the classing of the students. For instance, in the present junior class, the periods of attendance vary from 9 to 3 months. I propose, in future, that no student be admitted except at the commencement of each Session.

b.—The Winter Session, in future, to commence on 1st November, and end on 31st March, being five complete months.

The Summer Session from about the 20th or 25th April, (the day to be fixed by the Superintendent), to the 30th September. The recesses in April and October, to be devoted to examinations.

It is advisable that the Winter Session should be as long as possible, as only then can dissections be carried on to any extent, or operations exhibited on the dead body; further, both Lecturers and Students work with better results during the cold season.

c.—Final or passing examinations should take place twice a year, or at the close of each Session.

Admissions to the School are twice a year, (in November and April,) but the final examination has hitherto only been held once a year in March; it therefore follows that a student, admitted in November, must actually attend

3½ years, although by the rules of the School he is entitled to pass as Native Doctor in three years.

9. Regarding the Lectures given to the students and the style of teaching, I beg to offer some remarks.

The Agra Medical School is nominally for the training of Native Doctors of the 1st class, intended to supply the wants of the Military service in the North-Western Provinces; if it is to continue such *de facto*, then I am convinced that the students are, in some respects, over-taught, taught too minutely; in short, trained more for Sub-Assistant Surgeons than Native Doctors. Such over-training is hurtful in two ways. It tends to make the Native Doctor above his work. It is certain to make him discontented if, with equal attainments, he sees that he can only, after years of service, get one-third of the pay a Sub-Assistant Surgeon receives on first entering it.

There has apparently existed an idea that the Native Doctors, supplied by the Agra School, should far surpass those from the Calcutta College Classes, and the result is, that they are taught many theoretical minutiae of comparatively no importance, to the detriment of such practical teaching as would better fit them for the stations for which they are intended.

For instance, the number of Lecture days in a season averages about 80.

The Lecturer on Practice of Physic has composed and delivers a course which requires 164 days to complete, entering into all the details of many diseases which I have never met in practice. The Lecturer on Materia Medica requires 115 days to complete his course.

The senior students who have just passed, have only once, during the past three Sessions, had the arterial system demonstrated, because too much attention has been devoted to minute Anatomy, which for Native Doctors is comparatively useless; yet a knowledge of arteries, their position, and how to stop hemorrhage, is, for a Native

Doctor, one of the most practically useful parts of an anatomical course.

10. I may further mention, that until this last winter season, none of the students had been taught any thing about gun-shot wounds, or had any but a very theoretical knowledge of the various kinds of wounds and accidents, which must necessarily be placed under their charge in every Military Hospital.

There is a still more important point, which in the education of the student has not received that attention which it deserves; although it is for a Native Doctor almost of more importance than the knowledge of Anatomy—I allude to an intimate knowledge of English weights and measures, and a thorough practical teaching in preparing prescriptions and mixing medicines.

The students have been well taught in *Materia Medica*; but they have been taught theory, not practice. To remedy this, I propose forming a class, the sole subject of which will be to afford to each student the means of learning to do everything with his own hands, which he will be expected to do when he joins a Regiment. I hope also gradually to get the Lectures so modified, that while they shall continue to give every necessary information, they will be less burdened with technical details.

11. Clinical instruction, that is, opportunities of seeing Medical and Surgical Practice, is, in some degree, supplied by the cases treated in the wards of the Thomason Hospital, but to a less extent than is desirable, or than the accommodation in the Hospital might afford, were its advantages more extensively sought for by the residents in Agra and its vicinity.

The Hospital, including a spacious verandah to the north, could easily contain 100 beds, the average number of patients is only 30.

The population of the Agra district could supply many more patients, but there is a strong prejudice against the

Hospital, arising, I am convinced in a great measure, from the close vicinity of the Dissecting-room.

A great proportion of the patients are travellers, comparatively few residents of Agra ever apply for relief as house patient.

The Dissecting-room, originally only intended for a Dead-house, is not only too small for the purpose to which it is applied, but is within 30 paces of the Hospital, and the patients have constantly before their eyes the fact, that dead bodies are taken there for dissection. Even the effluvia from the bodies must be frequently a source of annoyance.

Under such circumstances it can easily be understood, why only a minimum of patients resort to the Thomason Hospital for treatment.

The compound of the Medical School is of considerable extent, and is bounded on one side by the city wall.

At its extreme corner furthest from the Hospital, and out of sight, (the Lecture-rooms intervening), there are two old houses abutting on the city wall, the site of which would make an excellent locality for a new Dissecting Room, and through a door in the City wall, bodies could be introduced without, as at present, offending the prejudices of those residing in the vicinity of the School.

12. In order to make the School popular, it is essential that the students should be protected from any annoyance, *because* they dissect the human body.

During the short period I have had the superintendence of the School, several instances have been brought to my notice of students being insulted and annoyed by the townspeople for the reason abovementioned.

The only effectual means to do this, would be to have all the students resident within the School compound; for this there is ample space, also for houses for the two Sub-Assistant Surgeons, who would be required immediately to superintend the conduct of the students.

13. *a.* What number of Native Doctors are annually required to supply the wants of the service in the North-Western Provinces?

*b.* What number of students should be admitted half-yearly, in order to keep up the supply? I regret that to the first of these questions I have not been able to get any reply, although I have made numerous enquiries. I am informed that the Director General, Medical Department, is collecting statistics which may throw some light on this subject.

To determine the number of students to be admitted, it will of course be necessary to know what the demand is; but whatever that may be, this is certain as far as our experience of the Agra Medical School goes, that many more must be admitted than are eventually required.

As a proof how quickly the original numbers diminish, I may state that of 41, admitted between December 1857 and April 1858, only 9 now remain.

The reasons for this falling off are various; some only commenced to study attracted by the Rs. 6 monthly allowance, and finding they were made to attend regularly, left the School; others were frightened at the dissections, and a few being inattentive or stupid, were discharged.

14. Since the commencement of the School it has been found that there was a difficulty in procuring a sufficient number of suitable students. To remedy this, Dispensary Apprentices were ordered to attend the School.

It was found, however, that many of these were either unwilling to attend, or were of inferior acquirements.

Again, in October 1858, the Director General, Medical Department, issued a circular to Superintending Surgeons to hold Committees for the examination of young men willing to attend the School.

The result of this was, that in November and December of the same year, thirty candidates entered the School, but at this last examination, (April 1st, 1859,) only three were supplied from the above source.



Fearing this result, I prepared an advertisement which was published for two months in the *Government Gazette*, the effect of this has been what I hoped for.

I have received many letters from various districts, making further enquiries; and at the examination on the 1st of April last, 87 candidates presented themselves, quite independent of the supply from Local Committees: of these 37 were admitted.

I believe the existence and advantages of the Agra Medical School are not sufficiently well-known generally throughout these Provinces.

I am preparing a brief account of the School in Oordoo, which I propose forwarding to each district, one copy to be put up in each Tehseel; by this means, and by renewing the notice in the *Government Gazette*, I trust always to have a sufficient supply of applicants at the commencement of each Session.

15. It would tend much to the advancement of the School, and to the formation of a more useful body of Native Doctors, if some reward or increased pay were allowed to all who could read Medical prescriptions in the English character; such knowledge to be tested in the final examination.

I have repeatedly suffered from the annoyance in urgent cases of being obliged to send for a Native Doctor, in order to explain what was required, and then having to wait until he had returned to the Hospital and prepared the medicine.

I believe that an extra allowance of Rs. 5 per month to all Native Doctors who could read English prescriptions, might induce many to learn English before entering the School.

I trust also that the recent orders of Government in the Home Department, regarding increased pay, under certain conditions, to Native Doctors in charge of Charitable Hospitals and Dispensaries, will make the study of medicine more popular.

Among our students who pass yearly, there will always be several who, from superior intelligence, will be quite capable of undertaking such independent charges.

16. I give the following statistics of the Medical School, as exhibiting some points of interest; but they do not show the total numbers that have attended since its commencement in 1854, no regular list of students' names being kept before October 1857.

|                                  |     |     |       |
|----------------------------------|-----|-----|-------|
| From April 1855 to January 1859, |     |     |       |
| Total admissions, ...            | ... | ... | 122   |
| Of these there were Hindoos, ... | ... | ... | 37    |
| Mahomedans, ...                  | ... | ... | 73    |
| Christians, ...                  | ... | ... | 12    |
|                                  |     |     | <hr/> |
|                                  |     |     | 122   |

Of these there were discharged or left the School, for various reasons,

|                |        |                      |
|----------------|--------|----------------------|
| Hindoos, 7     | } or { | 18 per cent. nearly. |
| Mahomedans, 28 |        | 38 ditto ditto.      |
| Christians, 10 |        | 83 ditto ditto.      |

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Of these who left the School, they were previously educated at private Native

|                                      |     |    |                                      |    |
|--------------------------------------|-----|----|--------------------------------------|----|
| Schools, ...                         | ... | 21 | Total admissions from these Schools. | 60 |
| Saint John's Missionary College, ... | ... | 14 |                                      | 24 |
| Agra College, ...                    | ... | 6  |                                      | 12 |
| Delhi College, ...                   | ... | 2  |                                      | 3  |
| Ajmere School, ...                   | ... | 1  |                                      | 2  |
| Cawnpore School, ...                 | ... | 1  |                                      | 3  |
| These have passed in two years, ...  | ... | 19 |                                      |    |
| Hindoos, ...                         | ... | 14 |                                      |    |
| Mahomedans, ...                      | ... | 5  |                                      |    |

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The number of students in the School, on the 20th April 1859, when the Summer Session commenced, is

|                                         |     |    |
|-----------------------------------------|-----|----|
| Senior Class, (completed 2 years), ...  | ... | 19 |
| 2nd Class, (completed 1 year,) ...      | ... | 15 |
| Junior Class, (completed 6 months), ... | ... | 22 |
| Admitted on 1st April, 1859, ...        | ... | 40 |

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17. Books on the various subjects taught have been much wanted, but I hope this will soon be remedied, as Surgeon Lacy is preparing a work in Anatomy, and Sub-Assistant Surgeon Ushruff Ally has, in his press, works on Practice of Medicine, Materia Medica, and Chemistry, the printing of all of which have, I believe, been already sanctioned.

These works are, however, chiefly for the use of advanced students. The method of teaching which has been hitherto found most efficient is this:—

Portions of the Lectures are read out each day, which the students are made to write down, the Lecturer enlarging and explaining on the subject. Frequent examinations are also held to test the attention paid. For the senior students, the books will be useful for the private study of what they have been previously taught in the Lectures-room.

I have procured from Calcutta all the Medical Works in the vernacular, of which there were spare copies, to form the commencement of a Reading-room for the students, in connection with the practical class I have before mentioned, and for which a room attached to the Lecture-room is being prepared.

18. A glossary of scientific terms for the use of the students is urgently required. On enquiry I found such a work had yet to be constructed.

As it would enable the student to learn and remember with greater facility the many new and difficult words he is taught in the course of his studies, I have commenced the formation of one in Oordoo, but it will require many months to complete.

As I am desirous of making it as generally useful as possible to the Native Doctor as well as the student, I propose including not only scientific terms, but every word which may possibly be used in an Hospital, or facilitate communication between a Native Doctor and his superior Officer.

When it is finished I shall have the honor of submitting it to Government for their approval.

19. I feel that many of the subjects I have mentioned are more indications of what I wish to do, than of anything which has been done for the improvement of the Agra Medical School.

As I have composed a three months' course of Lectures, translated them into Oordoo, and taught myself to read them in the Persian character since I assumed charge as Superintendent of the School in September 1858, besides attending to other professional duties, my time has been so much occupied that I have been able to do little more than make myself acquainted with what was required.

I intend to repeat my Lectures on Military and Practical Surgery every cold season; and as I feel the greatest interest in the advancement of the School, I trust to make it continue worthy of the liberal support afforded to it by Government.

20. To conclude, the zeal and attention exhibited by all the Officers attached to the School, is in every way satisfactory.

(Signed) G. R. PLAYFAIR,

*Superintendent Agra Medical School.*

*Agra, the 25th April, 1859.*

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II.—From GEORGE COUPER, ESQ., *Secretary to Government, North-Western Provinces*, to DOCTOR G. R. PLAYFAIR, *Superintendent, Medical School, Agra*, dated Allahabad, June, 1859.

SIR,—I am directed to convey to you the thanks of the

General.

Lieutenant-Governor for the useful and interesting report, on the condition and future prospects of the Agra Medical School, which was forwarded under cover, of your letter, dated 25th April.

2. There are a few points in the report which call for the orders of Government, and on which the Honorable the Lieutenant-Governor has recorded the following brief remarks.

3. The admission of candidates at all seasons of the year, which had its origin in the scarcity of applications, has given rise to inconvenience and to difficulty in classing the students, and His Honor approves of your proposal to alter this practice, and to admit candidates only at the commencement of each Session.

4. The dates fixed for the commencement of the Summer and Winter Sessions, and the period of each Session, as shown under *b* of para. 8, viz., that the Winter Session shall commence on 1st November and end on 31st March, and the Summer Session on or about the 20th April, and terminate on 30th September, are approved, and the institution of final examinations twice a year, so as to correspond with the admissions, will be a judicious modification of the present system.

5. Your remarks on the style of teaching followed in this School are full of truth and practical value. The object of the School being the education of "Native Doctors," not of Sub-Assistant Surgeons, it is manifestly a waste of time and of exertion, to instruct the students in all the theoretical minutiae of Medical Science, and it has, moreover, as you justly observe, an injurious effect upon the students themselves. The end to be kept in view should be to give to the students such practical knowledge as shall enable them to fulfil with efficiency the duties which ordinarily devolve upon Native Doctors.

6. What the exact standard of instruction should be, your professional experience will best qualify you to determine, and this is a point which must be left to your judgment; but the Lieutenant-Governor can have no hesitation in concurring with you that each course of Lectures should be completed within the Session, and he has

as little difficulty in appreciating the great importance of instructing the Students in a knowledge of the arterial system, in the treatment of gun-shot wounds, and a familiarity with English weights and measures, and the practice of making up prescriptions. All your resolutions on these points are judicious, and the Lieutenant-Governor trusts that you will give full effect to them.

7. The comparatively unfrequent resort of the inhabitants of Agra to the School Hospital is, no doubt, correctly accounted for by the proximity of the Dissecting-room, and this great impediment to adequate clinical instruction must be removed, though, in the possible contingency of the removal of the School to Allahabad at some future time, no greater expense than is absolutely necessary should be incurred. Doctor McKinnon, the Inspector General of Hospitals in these Provinces, has already brought to notice that the efficiency of the School is seriously impaired by the emptiness of the Hospital, which is attributed by him, as by you, to the vicinity of the Dissecting-room, and therefore the Lieutenant-Governor thinks it essential that a new Dissecting-room should be provided. You allude to two old houses, within the existing compound, which might be adapted to the purpose, but you do not say whether they form part of the property of Government or not. In any case you are authorized to take steps for the conversion of these into a Dissecting-room, submitting, in the first instance, a report showing the plan that you would desire to follow, and the expense that it would entail upon the Government.

8. The Lieutenant-Governor concurs in the expediency of requiring the students to reside within the compound of the School premises, and His Honor requests that you, in communication with the Executive Engineer, will determine and report what the cost of constructing suitable huts would be. They would be of course of a temporary character, and as inexpensive as possible; the possible contingency of the removal of the School to Allahabad being borne in mind.

9. Extract (para. 13. *a b*) from the report will be forwarded to the Director General, with a request that he will furnish any information in his power respecting the two points to which it relates, viz., the number of Native Doctors annually required to supply the wants of the service in the North-Western Provinces, and what number of students should be admitted half-yearly, in order to keep up the supply. He will also be asked to favor the Government with any observations or suggestions that may occur to him.

10. The measures taken by you for inviting suitable students to the School are proved by their result to have been judicious, and your zeal in preparing an account of the School in Oordoo, for the purpose of making its existence and the advantages which it offers more widely known, is very praiseworthy; the cost of printing this little work will of course be defrayed by the Government.

11. The suggestion contained in para. 15 of adding Rupees 5 to the pay of all Native Doctors who can read English prescriptions, seems to the Lieutenant-Governor worthy of adoption, and will be referred to the Director General of the Medical Department for his consideration. His Honor's opinion is, that the small extra expenditure, which would then be entailed on the Government, would be amply compensated by the higher efficiency which the Native Doctors would attain as Apothecaries. Unless some such attraction is held out, there can be little hope of this great advantage being secured.

12. The statistics given in para. 16, though curious and interesting, call for no remark at present. They show, however, that the Educational Institutions of the Government contribute but very few students, and lead to the conclusion that as the Medical branch of the service presents fewer attractions in the scale of pay and the prospects of advancement than others, the Native is guided in his educational course, not by a predilection for any particular profession, but by the

"auri fumes." It is money, in short, which he desires to secure, and not success, or distinction in any profession.

13. The Lieutenant-Governor highly approves of the effort which is being made by Doctor Lacy, Ushruff Ali, and yourself, to provide works on professional subjects for the use of the Students, as well as of your desire to establish a Reading Room for the Students, in connection with your excellent plan of instituting what you call "a practical class." Your proposed Glossary will be particularly useful, not only to Students, but to the Native employés of the Medical Department generally, and the author of the compilation will render a great public service. The cost of bringing out the work will be willingly defrayed by the Government.

14. In conclusion, His Honor again desires me to express his acknowledgments to you, for the great zeal and lively interest which you have shown in this most useful Institution, and to assure you of his support and assistance in carrying out all well-digested schemes for its improvement.

15. The report will be printed in a number of the "Selections," for general information.

I have, &c.,

(Signed) G. COUPER,

*Secretary to Government,*

*N. W. Provinces.*



No. 8.

REPORT ON THE AGRA MEDICAL SCHOOL, FOR  
THE YEAR ENDING 31st MARCH, 1862.

By G. R. PLAYFAIR, M. D.,  
*Superintendent Medical School, Agra.*

THE Winter Session closed on 31st March, and on the 1st April the Annual Examination commenced.

Of the sixteen\* (16) senior Students, candidates for the Diploma of First Class Native Doctor, ten passed a very good examination; one, who had been very ill during the winter, was remanded for three months, and five were wholly rejected.

Of the Junior Students, numbering sixty-eight (68), I have dismissed ten (10), whose replies did not reach the required standard, that is, the total value of whose replies did not amount to the number which I had fixed as the minimum to ensure success.

Several of these intend to continue their studies without receiving pay. This I am glad of, as among them are several really clever boys, who had been drawn into idle habits, and of whom it was necessary to make an example.

*New Admissions.*

Of Candidates for admission as Students there were forty-five (45).

This seems a great falling off from the seventy (70) who came forward in November, 1861, but more in appearance than in fact.

Of the seventy (70) in November, thirty (30) belonged to Agra, and I am always suspicious that residents of Agra only present themselves for the sake of the monthly stipends; of the forty-five (45) applications this year, only 9 belonged to Agra, *i. e.*, there were 36 candidates from a distance against 40 in November last.

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\* Originally 17. One, who had studied three years, and was particularly quiet and attentive, turned out to have murdered an European during the mutinies at Banda.

The test for admission is a competent knowledge of reading and writing Oordoo, and first four rules of Arithmetic.

This year I made the Arithmetical test more difficult. I find that boys who are worst in that branch, are most backward in learning.

It may perhaps excite a smile when I describe the extent to which the severity of this test was increased; but the material I have to commence with is so raw, and Rs. 20 after three years' study is so small a prize, that I cannot expect a much better educated class of boys. Usually in trying the Arithmetical powers of the Candidates, some simple sums were given. For example—

Multiply 85,579 by 24, or divide 9,64,038 by 47.

This year I gave a question, certainly simple enough, but requiring a little thought compared with the former method, and it had the advantage of at the same time testing the writing.

The following was dictated:—"526 pigeons were sitting on a tree; a little while after a number of pigeons, 36 times greater than those already present, came and joined them.

"12 fowlers by spreading their nets entangled them all, except 324 which made their escape. The fowlers divided the pigeons equally among them. How many did each receive?"

Of 21 Candidates admitted, 14 did the above sum correctly; 7 wrote well, but failed in the Arithmetic; the remainder were nowhere.

To the seven I gave a still more simple question, which they succeeded in doing:—"One evening 18 boys found Rs. 1,536. They concealed the money, intending to divide it equally in the morning, but a thief stole Rs. 1,356. How many were left, and how many did each boy receive?"

During the last Winter Session three boys had studied without pay. Of these two gained the necessary numbers and were admitted, making in all 23 admissions, as report-

ed in my letter No. 8, of 15th April. Of the 21 new Students 8 are Hindoos, a larger proportion than has yet been admitted.

The result of the swearing-in of the Students has been so good that during the past year there has not been one case of desertion.

In reference to the necessity of a knowledge of Arithmetic, I may mention that, in the practical Examinations of 1861, I found so many of the replies imperfect, solely from deficient knowledge of this point, that, at the expense of the Students, I engaged an Arithmetical Teacher, who taught the boys for an hour a day for two months, until they were perfect in the first four rules.

#### *Materia Medica Class.*

In my Report for the year ending 31st March, 1861, I mentioned that, notwithstanding the undoubted talent and zeal of the Teacher of Materia Medica, the results as shown by the examinations of his class were unsatisfactory, and that I intended personally teaching the class during the summer of that year.

This I did daily, until prevented by other onerous duties when the Cholera Epidemic commenced.

Although unable to continue during the whole Session, I gained the object I had in view.

I modified in many respects the style of teaching, making it much more practical, and the result, I am glad to report, has been extremely gratifying.

Whereas in former years the boys were taught chiefly from written descriptions, and scarcely at all from seeing things done, now each boy at least once a week, with his own hands, assists in preparing the various compounds in use in our Hospitals, and from the raw materials procurable in the Agra Bazaar. They are also made to practice daily the art of prescribing, and the various signs and figures in use.

The following is a list of medicines actually made by the Senior Students during the last Winter Session :—

I need scarcely insist on the value of this kind of teaching, which will enable a native Doctor to replace any medicine which may be expended, and which otherwise might only be procurable, after considerable delay, from some distant Dépôt.

*List of Medicines prepared by the Students during the Winter Session of 1861-62.*

|                    |                         |
|--------------------|-------------------------|
| Extract Rhubarb.   | Acidum Gallicum.        |
| Do. Chyretta.      | Tinctura Opii.          |
| Do. Liquoriœe.     | Do. Digitalis.          |
| Do. Stramonium.    | Do. Assafoetida.        |
| Hydrag. C. Cretta. | Do. Nux Vomica.         |
| Pill Hydrargyri.   | Ungt. Hydrarg. Nitrice. |
| Pulvis Kino Comp.  | Do. Hydrargyri.         |
| Do. Catechu Comp.  | Do. Resenæ.             |
| Do. Cinamomi Comp. | Do. Diacet Cupri.       |
| Emplastrum Resenæ. | Aqua Distillata.        |
| Do. Plumbi.        | Do. Cinamomi.           |

In the Examinations besides questions on the regular course of Lectures, there were two sets of practical questions :—

1st.—Practical Surgery.

2nd.—Practical Pharmacy.

Ten questions on each ; value of each question 20, purposely made double the value of questions on other branches to show the importance I place on practical knowledge. I give the results in the Examination of the ten boys who have gained their Diplomas :—

TOTAL VALUE OF EACH SET OF QUESTIONS.

| <i>Practical Surgery.</i> |         |         | <i>Practical Pharmacy.</i> |         |         |
|---------------------------|---------|---------|----------------------------|---------|---------|
| 4                         | gained, | ... 200 | 3                          | gained, | ... 200 |
| 4                         | Do.,    | ... 180 | 3                          | Do.,    | ... 180 |
| 1                         | Do.,    | ... 190 | 2                          | Do.,    | ... 160 |
| 1                         | Do.,    | ... 130 | 2                          | Do.,    | ... 140 |

The results among the Junior Students were still more satisfactory.

There is a subject I wish to bring to the notice of the Hon'ble the Lieutenant-Governor.

I am occasionally asked whether I can supply Native Doctors for Native States.

I do not think they should be supplied, unless the cost of their education is repaid, or at least the stipendiary allowance.

Could not each State, according to its wants, send yearly to Agra one or more boys to be educated as Native Doctors, their yearly expenses, say Rs. 80, to be defrayed by the State which sends them.

After a few years each State would possess a most useful class of subordinate medical servants.

It is essential that no boy be allowed more than Rs. 6 per mensem, that he may be on an equality with the Government Students.

I have mentioned Rs. 80, as the extra Rs. 8 will be required for books, &c. The yearly allowance should be sent in advance to the Superintendent of the School.

*Models, &c., from England and France.*

Of Rs. 1,500 placed at my disposal in the spring of 1861 by the kindness of the Hon'ble the Lieutenant-Governor, I have expended Rs. 1,252-13-7 for the following articles, including freight from Europe, insurance, inland freight in Europe, inland freight Calcutta to Agra, leaving a balance of Rs. 247-2-5 to pay for other articles ordered.

*List.*

Articulations, real bones with artificial ligaments. } 10 specimens.

Ear, ten times natural size.

Circulation of Fœtus.

Female Pelvis and Diameters.

Fœtal Head and Diameters.

Complete Skeletons.

Hand and Foot articulated *a la* Beauchene.

Middle Section of Trunk.

Jaw, showing 1st and 2nd Dentition.

Jaw (adult), showing Nerves and Blood Vessels.

Set complete adult Teeth.

Ditto Infant Ditto.

Bones of Head, *a la* Beauchene.

Model of various Abdominal Hernias.

Model with Fœtus, to illustrate Parturition.

*Eight* Wombs, with contents, at 1st, 2nd, 3rd, 4th, 7th, and 9th months of Pregnancy.

*Two* Wombs, showing Extra Uterine Pregnancy.

Model of Brain, takes into numerous pieces to show internal Anatomy.

Eye, large size, takes into numerous pieces to exhibit internal Anatomy.

Larynx, large size, opens to show organs of voice.

Complete set of (168) Specimens of *Materia Medica* as used in Edinburgh Medical College.

Specimens of all the Metals.

Book (folio) Plates, illustrating various stages and complications of Parturition.

Book (folio) Plates, illustrating Fractures and Dislocations.

The above have all arrived some months since, and with scarcely any damage worth noting.

I was at first rather afraid that the Wax models would not bear the heat of India; but several which were procured by the Agra College from the same maker in Paris have stood the test of the voyage, and the heat of the summer of 1861 in Agra, and are as perfect in the minutest details as when they left the shop of the manufacturer.

The collection is a most useful one, and has been inspected with much interest by all the Medical Officers in Agra.

Some additions are required, but these can be made gradually, as soon as the contingent allowance of Rs. 100 per mensem is sanctioned.

G. R. PLAYFAIR, M. D.,

*Supdt. Medical School, Agra.*



## No. 9.

## REPORT ON A SPECIES OF PALSY PREVALENT IN PERGUNNAH KHYRAGURH, IN ZILLAH ALLAHABAD, FROM THE USE OF KESSAREE DAL, AS AN ARTICLE OF FOOD.

In a Report, dated 30th March, 1857, I drew attention to the prevalence of what I considered to be a species of Palsy that prevailed in Barraha, a pergunnah of the Allahabad district, and which was supposed to be caused by the people living on Kessaree dal, a vetch known to botanists as *Lathyrus sativus*. The present Report refers to the same disease, as it appears in Khyragurh, a pergunnah of Allahabad, situated on the other side of the Tons river, and adjoining Barraha.

*Marches made in Khyragurh.*—On the 24th January of this year, I joined the camp of Mr. Court at Kutka, on the banks of the Tons, and the same day we marched to Mejah, where the Tehseeldaree of Khyragurh is situated. Hitherto we had passed through a fine country, with rich soil, and bearing abundant crops. At Mejah, on enquiring for cases of Gutteea, which is the name applied by the natives to this kind of Palsy, I was told that there were a few examples, but the only one brought to me was a case of the ordinary Palsy. Leaving Mejah next morning, we passed over a low range of rocky hills, and came to Koraon. On the march we observed much black marl soil, and found Kessaree dal growing in profusion. The ground in many places round Koraon is swampy, tanks abound, and the water of these the people drink. On the surface of the soil, in many places, an efflorescence of nitre was noticed. The following morning we came to Lureearee. The soil, as before, was of dark marl; Kessaree was plentiful as a crop, and cripples were noticed in most of the villages we passed. In proceeding next day, a distance of six miles, to Keeree, we traversed a poorer-looking part of the country



than we had hitherto done. The soil, as before, was marly and there seemed to be hardly any other crop at this season than the poisonous vetch. In many places, there were large tracts of uncultivated land covered with low jungle bushes. We observed many cripples. Next day we crossed the Tons, and in doing so entered pergunnah Barrah. Bad as the soil of Khyragurh had gradually become, as we were approaching Barrah the change for the worse was very evident on entering the latter pergunnah. The black marl soil crumbled in the hand, and the ground was everywhere split into deep fissures, and large hollows, as if so much of the subjacent soil had sunk down from the action of water. Cultivation was carried on to a trifling extent, but the crops seemed scanty, and consisted chiefly of Kessaree dal. We passed no village of any size.

On the 30th of January we arrived at Barrah. On the road thither, we passed many ruined and deserted villages, and observed the usual black, dry, cracked soil; the country abounding in tanks, Kessaree dal and lame villagers. Next day we proceeded to Kurma, in pergunnah Arail, and found the soil and crops steadily improving as we advanced; and we saw no paralytics. The crops were not, as in Barrah at this season, confined almost exclusively to Kessaree and Gram, but were varied by a plentiful admixture of barley and wheat.

*General appearance of the Country.*—Such is a sketch of the extent of my marches in Khyragurh and Barrah, during the nine days, that I was out in camp with Mr. Court in the past cold season. The appearance of the soil alone was sufficient to indicate what crops one might expect; and if it were of dark marl, one might be equally certain that Kessaree, or as it is otherwise called “Chup-tooa Muttur” would, at this season, be the prevailing crop; and that where one found this soil and this crop, one might look with a certainty of finding men crippled in their legs, in the surrounding villages, or in their neigh-

bourhood. The people of Khyragurh and Barrah appear to drink tank water. These tanks are very numerous all over this part of the country; so numerous, indeed, that they cannot be intended for holding drinking water only, but are probably intended to drain particular pieces of land, and also for purposes of irrigation in the hot weather. Wells appeared to be comparatively rare, and, in such as existed, the water was found close to the surface: that is to say, within eight or nine feet of it. In some parts of the country that we passed through, there is a stratum of stone a short distance beneath the soil, which would render well-sinking difficult and expensive; but this cannot be the only reason that wells are so scarce, for in places where there is no substratum of stone, and where the water is close to the surface, we only met with tanks. From what has been said of the soil and water of Khyragurh, it may be inferred that, in the rainy season, the country must be almost entirely covered with water, and this I believe is the case.

*Crops.*—The Khureef crop in the portions of Khyragurh in which paralytics are found, consists of cotton, which is produced in considerable quantity; kodoo is also largely cultivated, while jooar and bajra are produced in comparatively small quantities. The principal crop at this season is a coarse, but very productive kind of rice called *sathee*. The Rubbee crop consists of wheat and barley in small quantity, and which do not come to perfection. In all parts of Khyragurh and Barrah in which I have seen these grains growing on the marl soil, they seemed to be stunted in the growth of the stalk; the heads were unproductive, and the grains were dark-colored and small in size. As Rubbee crops, we have also gram, linseed, Urhur dal, and lastly, and chiefly, Kessaree dal. In my former Report it was stated, that Kessaree formed the principal food of the people of Barrah for a great part of the year, being the cheapest; that it required little or

no cultivation, no labor or trouble to produce it, and that it grows on damp, swampy soil, that would bear no other crops. The ground merely requires to be lightly ploughed once, and the seed is then thrown; when it speedily germinates, and comes to perfection without further interference on the part of the cultivator. Mr. Court, in the letter which forwarded my former Report to Government, has stated that Kessaree grows in all seasons, varying in luxuriousness of growth only according to the season, and affording the only certain provision of life in Barrah. All this applies with equal force in the case of those parts of Khyragurh in which cases of Palsy occur.

*Extent of Palsy in Khyragurh.*—When out in the district, every opportunity was taken to enquire into the amount of lameness in the various villages, and to ascertain from those affected the history of their cases, as well as the prevalent notions of the people generally, as to the nature of a malady which disables so many otherwise healthy men. The following table, compiled from returns which Mr. Court very kindly directed the Tehseeldar to draw out, exhibits the extent to which Palsy prevails in Khyragurh.

TABLE.

| Talooka.        | Population. | Number of Paralytics. | Percentage of Paralytics to Population. |
|-----------------|-------------|-----------------------|-----------------------------------------|
| Chowrassee, ... | 6,760       | 31                    | 0·43                                    |
| Barokhur, ...   | 9,194       | 146                   | 1·58                                    |
| Kohrar, ...     | 10,120      | 109                   | 1·07                                    |
| Dyah, ...       | 15,722      | 251                   | 1·59                                    |
| Mara, ...       | 20,789      | 102                   | 0·48                                    |
| Khurkha, ...    | 8,215       | 250                   | 3·04                                    |
| TOTAL, ...      | 70,800      | 889                   | 1·25                                    |

The disease is thus much less prevalent than in Barrah, in which pergunnah, out of a population of 56,649, as given by the Tehseeldar in January of this year, 2,221 were paralyzed, or 3·92 per cent.

The table above shows clearly, too, that all the Talookas of Khyragurh do not suffer in equal proportions; and in fact it would be found, that cases of Palsy in particular places, are in exact proportion to the quantity of Kessaree dal cultivated. My impression, from what I saw is, that in the table the amount of Palsy in Khyragurh is under-stated.

At Koraon I spoke with some forty or fifty cripples, who had been assembled there from all the surrounding villages. Many of them called their complaint rheumatism, and appeared to imagine that it was occasioned by a noxious wind (kharab hawa) that blows in the rains. Others spoke of the deleterious properties of the water during the rains as the cause, or at all events, a cause of the affection. Every one who has spoken to natives about the origin or cause of any obscure disease, knows how prominent are the parts that bad wind and bad water play. By means of them, and of heat (gurmee) they appear to account for all manner of diseases. Others spoke of their feeding on Kessaree as the cause of their Palsy. Their ideas were not at all clear as to the agency of bad wind, bad water, and Kessaree dal, respectively, in producing the disease in any case; nor could I discover whether they considered that bad wind or bad water alone would give rise to Palsy in one who did not use the poisonous grain. One man said one thing, and another the reverse. Here, as at Barrah, many spoke of the suddenness of their seizure, and several said how they had been working in the fields during the rains, when they all at once felt pain in the loins, as if rheumatism had seized them. An old man asserted, and many others told me the same thing, *viz.*, that the disease is only produced in particular years; the theory being, that it is only in those years that the "kharab hawa" prevails. There would appear, however, to be no foundation for this statement; for, of the cripples I examined at Koraon, the year in which they stated they had become lame, was too various to admit of the idea above alluded to being true.

The following are given as examples of the cases seen at Koraon:—

1st.—Dussoobbee, chumar, aged 35, inhabitant of Purureca, has been lame five months; he was working in a rice khet during last rainy season, and had sat down, when suddenly he found that he was unable to raise himself. He felt no actual pain at the time, but now his knees and loins ache when he rises from a sitting position to the erect posture. He used to eat, and still eats Kessaree.

2nd.—Jowahir, koonbee, aged 50, an inhabitant of Chokundee village, has been lame for three years. He was working in the fields during the rains, when he became lame. He had no fever, or other illness before he became so. This, all the paralytics that I have examined assert likewise. He used to eat Kessaree, and still does so.

3rd.—Emambux, musulman, aged 40, inhabitant of Koraon, states that he was labouring in the fields during the rains about three years ago, when he became lame all of a sudden, and has so remained. He used to eat Kessaree, and still does so.

4th.—Sheonundun, aged 10 years, has been lame since last rains. He was tending cattle in the rains, when he became so. He, too, has always lived on Kessaree.

5th.—Bison Lall, brahmin, aged 60, has been lame for two years. He has always lived principally on Kessaree, and still does so. This man stated, that since he became paralyzed he has felt pain in the loins, but nowhere else.

*General Symptoms.*—These short histories correspond exactly with those given in my previous Report. The characteristic of the affection appear to be—the generally sudden seizure of the patient; the time of seizure—the rainy season; the absence of any accompanying fever, or other acute disease; the absence of pain, except in the knees and loins, and that only when they attempt to walk. The affected do not appear to fall off much, if at all, in condition, in consequence of the disease, nor, so far as I

could Judge, did the legs fall away, as one would have expected. There seems to be no blunting of sensation. I pinched equally hard an arm and an affected leg of the same person, in many different instances, but all said that they felt it as much in the leg as in the arm. Bison Lall whose case is given above, as well as several others, have told me, that they feel cold, from the loins downwards, more acutely now, than they did before they became lame. Others complained of a tingling sensation in the legs.

*Affects Men more than Women.*—A peculiarity of the disease is, that it affects men more commonly than women. Thus it appears, from a return kindly furnished me by Mr. Court, that in Barrah at the beginning of this year of a population of 33,951 males, 2,087 are paralyzed, or 6.11 per cent.; while of 22,658 females, only 134 or 0.59 per cent. are affected. According to this return, the total population of Barrah in January was 56,649, of whom 2,221 are paralyzed, or 3.92 per cent.\* The same fact is apparent in the return from Khyragurh.

TABLE.

| <i>Taloka.</i>    | <i>Population.</i> |                 |               | <i>Paralytics.</i> |                 |               | <i>Rates per cent. of Paralytics to Population.</i> |                 |               |
|-------------------|--------------------|-----------------|---------------|--------------------|-----------------|---------------|-----------------------------------------------------|-----------------|---------------|
|                   | <i>Males.</i>      | <i>Females.</i> | <i>TOTAL.</i> | <i>Males.</i>      | <i>Females.</i> | <i>TOTAL.</i> | <i>Males.</i>                                       | <i>Females.</i> | <i>TOTAL.</i> |
| Chowrasee,...     | 3,533              | 3,227           | 6,760         | 26                 | 5               | 31            | 0.73                                                | 0.15            | 0.43          |
| Burokbur, ...     | 3,855              | 5,339           | 9,194         | 139                | 7               | 146           | 3.60                                                | 0.13            | 1.53          |
| Kohrar, ...       | 5,171              | 4,949           | 10,120        | 107                | 2               | 109           | 2.06                                                | 0.04            | 1.07          |
| Dayh, ...         | 8,973              | 6,749           | 15,722        | 238                | 13              | 251           | 2.65                                                | 0.19            | 1.59          |
| Mara, ...         | 10,666             | 10,123          | 20,789        | 93                 | 4               | 107           | 0.8                                                 | 0.04            | 0.48          |
| Khurka, ...       | 4,098              | 4,117           | 8,215         | 239                | 11              | 250           | 5.83                                                | 0.26            | 0.04          |
| <b>TOTAL, ...</b> | <b>36,296</b>      | <b>22,504</b>   | <b>70,800</b> | <b>842</b>         | <b>42</b>       | <b>884</b>    | <b>2.31</b>                                         | <b>0.18</b>     | <b>1.25</b>   |

\* In a return given in my first Report, the population of Barrah in 1857 was stated to be, males 32,827, females 30,663, total 63,490. Affected with palsy, 2,028 or 3.19 per cent.

Mr. C. B. Thornhill was good enough to obtain for me a return of paralytics in chowkee Burgah, pergunnah Mow, zillah Banda. From this it appears that there are in this part of that district, 2,964 men, of whom 199, or 6·71 are paralyzed; and that of 2,562 women, 11 or only 0·43 are affected.

*Prevalence over India.*—Of this affection, I have found various traces in other parts of India, besides those given in my former Report. In the part of pergunnah Kur-channah of the Allahabad district which joins on to Barrah, and possesses the same soil, we have a few cases.\*

*Banda.*—I had hoped to give some interesting details regarding the prevalence of palsy in other parts of Banda. But after waiting a long time for a translation of papers ordered for me through Messrs. Thornhill and Mayne, I found them so evidently erroneous, that I do not produce them here. For example, in a vernacular table which was furnished by a Native official, there was a column in which to insert the usual food of the various villages. This was almost invariably stated to be wheat, barley, bajra, kodoo, &c.; Kessaree was very seldom mentioned under the name of *peas*, although it was shown in another column that paralytics were common. Thinking this very strange, and suspecting that the whole of the return was a mere effort of imagination, on the part of the official in question, I wrote to Peearee Mohun Banerjee, Deputy Collector of Banda, on the subject; and found, as I anticipated I should do, “that the dal of Kessaree is extensively grown in the pergunnahs affected by the disease, but the people call it by the name of *Chotee Muttur*.” He adds, “It is much used by the poor man, and grows abundantly in the hilly tracts of the pergunnahs Cheebo and Tirohan.”

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\* There is not a trace of the disease to be found indigenous in any other part of the Allahabad district. Mr. Court made full enquiries on this subject, and found it unknown in the Doab, or across the Ganges. Several Tehseeldars said that they had seen cases, but that they were among men who had come from Barrah, Khyragurh or Banda.

*Mirzapore*.—The disease would appear to prevail in the Mirzapore district also. But I have failed to obtain any information regarding it through officials, although I tried to do so. Captain F. Chapman of the Allahabad Military Police, who has lived in the interior of that district, told me that “cases of paralysis from Kessaree dal in the Mirzapore district are few; but I have never seen a case in which the slightest doubt was expressed as to its use having been the cause. Women, however, are never to my knowledge affected, only the males.” He also states that in the Mirzapore district, this vetch is named “*Karoa dal*.”

*Patna*.—The same kind of Palsy is also said to prevail in the neighbourhood of Patna and Gya. Dr. Allen, the Civil Surgeon of the latter station, informs me that “it is very common in the villages of the district.” He had not seen the diseases himself, but was told by one of his Native Doctors that a man sleeping near Kessaree dal which has been cut and collected in a heap in the time of harvest, may become affected with palsy in consequence. This is probably an oriental delusion, but it shows that the natives of that part of India, are aware of some connection between Palsy and Kessaree as a cause thereof.

*Affghanistan*.—I have been informed that the sepoy part of the army which accompanied General Elphinstone on the first expedition to Cabul, suffered much in consequence of eating Kessaree dal. They well knew the deleterious effects of its constant use; but as they were often reduced to a pound of attah as their daily ration, they were very glad to make up the deficiency with the dal; and in consequence of eating it many men are said to have suffered from debility; by which term is probably indicated the symptoms that are observed in Khyragurh and Barrah.

*Punjab*.—I cannot learn that Palsy from the use of Kessaree dal exists in the Punjab; but I have not the means of making any extensive enquiries. Assistant Sur-



geon J. R. Jackson, who has served a good deal on the frontier, and in other parts of the Punjab, tells me that he has not seen any case of the disease. He further states that Kessaree is sold in most of the bazaars, and is very commonly used once or twice a month by way of a change.

*Bengal.*—I have asked several intelligent and educated Baboos as to the existence of the disease in Bengal; but as far as I can learn, it is not known. Kessaree Dal is found in Bengal, but is not employed as food to the almost total exclusion of all other grains, as in Barrah and Khyragurh. It seems to be very generally eaten by way of a change, as in the Punjab.

*Horses gone in the Loins.*—There is a disease in the horse known in Bengal, and other parts of India, which affects the spine in the loins, and appears to be of a paralytic nature. A horse so affected is said to be "gone in the loins." Now it seems by no means improbable, as suggested by a writer in the *Englishman* newspaper, in speaking of the disease among the natives of Barrah, that this affection in the horse is similar, and that it is produced in the same way, namely, by the horse feeding on gram largely adulterated with Kessaree dal. I do not know the appearance of the gram usually sold in Bengal, but there is hardly a sample of it to be procured in many parts of the North-Western Provinces, which does not exhibit a considerable admixture of a small dark-green pea, speckled with black. This is the Kessaree dal.

*Is the affection paralytic.*—As to the nature of this affection, I believe it to be paralytic. Others, however, have thought it was of the nature of rheumatism. Assistant Surgeon Abbott of Rewah, who has seen cases of the disease, informs me, that he inclines to this opinion, which is also not uncommon among the natives. The examination of a few bodies after death might probably enable one to give better reasons than can at present be done, for maintaining either one side or the other. Hitherto, however, I

have failed to obtain any cases for dissection. There can be no doubt that, if what has been above stated, on the authority of affected natives, of the history of the disease, is true, there are circumstances that would appear at first sight to point to rheumatism as the essential part of the disease. For example, it is generally, if not always, contracted in the rainy season ; and again, men who are more exposed to damp, and other causes of rheumatism, are much more liable to the disease than women, who are less exposed. This, however, does not bear investigation. We have the rains over the whole country, and men equally exposed to their influence every where ; but the affection is not universal, being confined to certain parts in which the Kessaree dal is cultivated. There are, besides, other arguments against the supposition that the affection is rheumatism. If it were so, we might expect to find other parts occasionally affected, and not invariably the lower extremities only. Again, the only uneasiness complained of—it does not amount to pain—is in the loins, as one would expect in palsy of the lower limbs. But what seems to me to be the strongest argument in favor of the lameness of Khyragurh and Barrah being of a paralytic, and not of a rheumatic nature, is, that a similar affection has long been known in various parts of Europe, as well as in India, to result from the use of Kessaree dal as well as of some other members of the natural order of plants to which the Kessaree belongs, *viz.*, the Fabiaceæ. In these cases, the affection has been regarded as paralytic. The affection in fact simply seems to be an instance of what is termed Chronic poisoning, that is to say, injurious effects produced by frequently repeated doses of a poison. Other substances, in frequently repeated small doses, produce palsy. Of this we have familiar instances in the case of mercury and lead, although in the latter instances, the affection is more curable, as these poisons admit of elimination.

*Treatment.*—As to the treatment of Palsy produced by the use of Kessaree, I have nothing satisfactory to add. Five cases were recently under treatment in the Government Dispensary, and to a certain extent improved on being well fed ; but when remedies were administered, the men took fright, and all left. Situated as the people of Khyragurh and Barrah are at present, if any were cured in Allahabad, and were sent back to their homes, they would again be exposed to the action of the exciting cause of their malady, as they would be compelled to live on Kessaree, and would again, in all probability, become affected.

*Conclusion.*—The form of Palsy to which I have drawn attention, is one of great interest. As yet our information regarding it is but meagre, although the subject seems well worthy of further and fuller investigation, with a view of mitigating the evil. It is indeed remarkable, that thousands of people, who know that a particular grain may render them lame, yet continue to use it as food. Is this because they must either eat the poison or starve? Will no other grain grow, and be productive in the affected parts of Khyragurh and Barrah, except Kessaree? If not at present, will drainage or other means render the soil capable of bearing other, and less deleterious crops? Are there no means, in fact, of inducing the people to give up the use of this poisonous food? These are practical questions well worthy of solution.

In conclusion, I have to express regret that this Report has been so much delayed. It was not, however, altogether my own fault, as I was long delayed, waiting for certain returns.

JAS. IRVING,  
Civil Surgeon.

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*IV.—From J. D. SANDFORD, Esq., Officiating Under-Secretary to Government, North-Western Provinces, to OFFICIATING COMMISSIONER of Allahabad Division.—Dated Nynce Tal, the 3rd August, 1860.—No. 871 A.*

I AM directed to acknowledge the receipt of your letter of the 9th instant, No. 236, submitting a further Report, prepared by Dr. Irving, Civil Assistant Surgeon, Allahabad, on the Palsy which prevails in the Barrah and Khyragurh pergunnahs of the Allahabad-district.

2. In reply I am directed to request, that you will convey to Dr. Irving the thanks of this Government for his interesting reports, which throw much light upon the origin of this distressing complaint, which prevails so commonly in these pergunnahs.

The reports will be published in an early number of the Selections, in the hope that they will attract the attention of other Medical Officers, and lead to investigations being undertaken in other parts of the country.

3. Apparently the Palsy, which the use of the Kes-saree dal, as food superinduces, is practically incurable, and the only means can be beneficially used, must be of a preventive character; that is to say, such means as will improve the condition and circumstances of the people, whose poverty drives them to support life by the use of this cheap, but most deleterious vetch.

4. It may be hoped that the revision of settlements in Khyragurh and Barrah, and the large reduction of the Government demand which it will involve, will contribute to this desired end.

J. D. SANDFORD,  
*Offg. Under-Secretary to Government,  
North-Western Provinces.*

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## No. 10.

## REPORT ON A SPECIES OF PALSY OF THE LOWER LIMBS, PREVALENT IN PERGUNNAH BARRAH, ZILLAH ALLAHABAD.

IN the cold season of 1856-57, Mr. Court, the Collector of Allahabad, when in pergunnah  
 Introduction. Barrah, on the right bank of the Jumna, was very forcibly struck by the number of lame persons that he met in all directions. On enquiry he found in village after village that there were several cripples in each. He was also informed that the disease was of recent origin, and that it was attributed by some of the people to their living on bread made from Kessaree dal, and by others of them to the unhealthy qualities of the wind and water of the pergunnah ; causes of disease which are ever ready to be brought forward by natives to account for any unusual or unintelligible sickness. Several cases of Paralysis of the lower limbs were sent by Mr. Court from Barrah, to the Government Charitable Dispensary for treatment. Unfortunately, however, they got tired of the means employed for their cure, and left after being in hospital about a month or five weeks. Mr. Court, however, knowing that I was anxious to enquire into the nature and history of the malady, with his accustomed zeal and kindness accompanied me to Barrah, and afforded me all the assistance in his power. I have much pleasure in recording my sense of the obligation he thus conferred on me.

Close to the village of Kheerut Gohanee, on the Sohagee  
 Examination of the Pa- road, Mr. Court had ordered all the  
 ralytics. lame people from surrounding vil-  
 lages to be mustered for my inspection on the morning of the 6th February, 1857. About fifty men were present, all more or less lame in both legs ; some so badly so as to be hardly able to move ; while others were only slightly

affected. One after another was questioned, and the following particulars were thus gathered. Without excep-

Mode of seizure and symptoms. tion they all stated, that they had got lame during the rains. In most cases they had suddenly become so, and several stated that it had been during the night. Men who had gone to bed quite well, had awoke in the morning feeling their legs stiff and their loins weak, and from that time they had never regained the use of their limbs. At first the lameness was trifling, and amounted only to unsteadiness of gait and slight stiffness, chiefly of the knees. After a time the muscles of the thighs commenced to ache and feel weak, and also the loins; in no case, however, did those examined admit that they had then, or ever, had severe pain either in their limbs or loins. They all ascribed their disability to their feeding principally on Kessaree dal, but they also seemed to imagine that in order to produce the disease, there must be another circumstance superadded, viz., the deleterious quality of the water during the rains. So far as could be gathered it was not from drinking the water that they fancied they took harm, but from getting wet by it. More than one dwelt on the circumstance of his having been exposed to rain, either while ploughing, or while tending sheep, and others spoke of having been working in jheels just before they became lame. The people were particularly examined and questioned as to whether they had had symptoms of fever or of any other disease at the time they became palsied, but they all said that they had not. In only one of many cases examined did I find enlargement of the spleen. Many of the men appeared to be strong looking, and the legs even in most cases did not appear to be much wasted, if at all so. I was also told that the complaint did not shorten life, nor lead to other disease; unless indirectly, in cases in which it prevented the individual working, and thus procuring proper means of support. I was

also told that the arms were never effected. There were, however, some few cases of persons so much disabled that they could not walk. It was further stated, that males were much more often affected than females, and that the ryots were more subject to the disease than the zemindars, although it also prevailed among the latter class.

The following cases, selected at random, are given as  
Cases. illustrations of the complaints:—

1st.—Bhowancedeen, chamar, aged 35, an inhabitant of Keruth Kullan, has been ill six months. He states that he was working in the month of August during rain. The following night he slept in his hut, and awoke next morning with pains of the loins, which were at first very slight. He now walks with considerable difficulty and unsteadiness, dragging the feet and scraping the great-toe nail against the ground in bringing one foot before the other. At the same time that he became paralyzed, two of his children became so also.

2nd.—Sheolall, kolè, aged 45, resident of Keruth Kullan, has been paralyzed for twelve years, and states that he became so suddenly in the rains. He has a boy <sup>similarly</sup> affected. This man walks very lamely <sup>is</sup> <sup>after being</sup> inwards, and his legs are much <sup>Mr. Court, how-</sup> <sup>fast</sup> <sup>quire into the na-</sup> <sup>walking he has slight pain of the loins at</sup> <sup>customed</sup> <sup>and</sup> <sup>afforded</sup> <sup>eight or nine years past; states that when</sup> <sup>much pleasure</sup> <sup>had been grazing cattle during the rainy mo-</sup> <sup>ber, and slept in a shed, one morning he felt</sup> <sup>loins and knees, which has gradually increase</sup> <sup>walks very lamely, and with much difficulty, the feet be-</sup> <sup>ing turned inwards and the knees bent. The great-toe</sup> <sup>nail scrapes the ground. This I have observed in many</sup> <sup>of the old cases. The nail gets regularly rubbed down to</sup> <sup>the quick.</sup>

3rd.—Doorga, buniah, aged 40, has been <sup>and</sup> <sup>afforded</sup> <sup>eight or nine years past; states that when</sup> <sup>much pleasure</sup> <sup>had been grazing cattle during the rainy mo-</sup> <sup>ber, and slept in a shed, one morning he felt</sup> <sup>loins and knees, which has gradually increase</sup> <sup>walks very lamely, and with much difficulty, the feet be-</sup> <sup>ing turned inwards and the knees bent. The great-toe</sup> <sup>nail scrapes the ground. This I have observed in many</sup> <sup>of the old cases. The nail gets regularly rubbed down to</sup> <sup>the quick.</sup>

4th.—Ramdyal, chamar, aged 21, an inhabitant of Gureia, has been ill about eight years; states that during the rain,

## MEDICAL STATISTICS.

in the month of July, he had been ploughing and went home at night, sleeping inside his hut: next morning he awoke paralyzed. His walk is unsteady, and he has difficulty in raising his body from the ground by means of a stick.

5th.—Palce, cachee, aged 13, belongs to the village of Gureia; has been lame five or six years. He walks tolerably well with the knees bent: he became ill in the month of October.

6th.—Bundoo Needas, an inhabitant of the village of Tilgunnah, has been paralyzed for eight years. He had been employed driving bullocks in the month of August, and suddenly found himself lame.

Let us now enquire into the extent to which this disability prevails in Barrah. The following is an abstract of the census of the pergunnah for the year 1853.\*

| HINDOOS.     |          |                  |          | MUSSULMANS.  |          |                  |          | TOTAL. |
|--------------|----------|------------------|----------|--------------|----------|------------------|----------|--------|
| Cultivators. |          | Non-Cultivators. |          | Cultivators. |          | Non-Cultivators. |          |        |
| Males.       | Females. | Males.           | Females. | Males.       | Females. | Males.           | Females. |        |
| 20,166       | 18,221   | 11,787           | 11,586   | 368          | 395      | 506              | 461      | 63,490 |

appears from a return kindly furnished to me by  
month of January 1857, there  
noted with Para

Now, it appears from a return kindly furnished to me by Mr. Court, that in the month of January 1857, there were in the pergunnah 2,028 persons afflicted with Paralysis, or 1 in 31·30 of the population as it stood in 1853 or 3·19 per cent.

\* The population here stated differs from that given in the report of the census of the North-Western Provinces for 1853. Above I have only given the number of actual inhabitants of the pergunnah on the night of the 1st January, 1853. Travellers and others not properly speaking inhabitants have been excluded.



The above fact discloses a great amount of removable disease; upwards of 3 per cent. of the population rendered useless by a single disease; for only a few of the paralyzed are able to do any work in order to support themselves. To show the extent to which palsy of the lower

|                           |     |     |
|---------------------------|-----|-----|
| <i>Note by Collector.</i> |     |     |
| Uninhabited,              | ... | 58  |
| Afflicted,                | ... | 188 |
| Non-afflicted,            | ... | 49  |
| Total,                    | ... | 295 |

limbs prevails in certain villages, the following facts may be stated:—  
Mr. Court informs me that there are 295 villages, and I have a return showing that there are paralytics in 188, leaving 107 villages scattered over an area of 1,58,493 acres, in which there are no cripples.

Different villages, however, are affected in very different degrees and proportions.

*Proportion in different villages.*

Thus in Kuchra, with a population of 371, there is only one paralytic, while in Soonderpoor, with a population of 250, there are 39. In Puchiour, with a population of 375, there is one paralytic. In Busehora Uperhar there are 353 inhabitants, of whom 33 are palsied. In the village of Abheepoor there are 268 inhabitants, of whom 22 are paralytic. In Lohera, out of 557 inhabitants, 8 are paralytic, or 1 in 69. In Pooreh Gunga Chuk there are 261 inhabitants, of whom 20 are palsied, or 1 in every 13. In Buradech Zubtee, there are 148 inhabitants, 8 of whom are lame, or in the proportion of 1 in 18. In the village of Harro, there are 344 inhabitants, 6 of whom are paralyzed, or 1 in 57. In Room there are 6 paralyzed villagers out of 198, or 1 in 33. In Buckla there are 491, and only 4 paralyzed, or 1 in 121.

The disease, as might be expected, is not confined to

*Prevalence in Khairagurh and Banda.*

Barrah. Examples of it are found in Khairagurh of Allahabad, and in the adjoining district of Banda, as shown by the following Memorandum by Mr. Mayne,

the Collector of that Zillah, which was obtained for me by Mr. Court:—

| Pergunnah.  | Thannah.        | No. of Villages in which Cripples are known to exist. | No. of Cripples. | Population of Pergunnah. | Percentage. |
|-------------|-----------------|-------------------------------------------------------|------------------|--------------------------|-------------|
| Chiboo, ... | Mhow, ...       | 33                                                    | 64               | } 80,170                 | 0.249       |
|             | Burgah, ...     | 26                                                    | 131              |                          |             |
|             | Rajapoor,       | 3                                                     | 5                |                          |             |
| Total, ...  |                 | 62                                                    | 200              |                          |             |
| Enohan, ... | Kurwee, ...     | 10                                                    | 14               | } 86,313                 | 0.139       |
|             | Manickpoor, ... | 23                                                    | 72               |                          |             |
|             | Bhimree,        | 12                                                    | 34               |                          |             |
| Total, ...  |                 | 45                                                    | 120              |                          |             |

“The greater amount of cripples in pergunnah Chiboo is to be found in Burgah, which is composed entirely of villages in the hills. In Mhow, where the country is less hilly, the numbers decrease, and in Rajapoor where there are no hills, we have none at all. The causes are given as gutheea baice, gurheen beeadh shukembad, gutheea adhung. The same remarks apply to pergunnah Enohan, Thannah Manickpoor is entirely in the hill country, and the cripples are there more numerous. Thannah Bhimree is less hilly, and has less cripples. Kurwee is in the flat country, and contains hardly any cripples.”

Before making a few remarks on the cause of the disease, it seems necessary to glance, for a little, at the physical aspect of the pergunnah, and at the circumstances likely to conduce to sickness. Pergunnah Barra is bounded on the north by the river Jumna; on the south by the Bilund river, which separates it from the Rewah Territories; on the east by pergunnah Arail, in zillah Allahabad, and by the Tonse river; and on the west

by the Banda district. In passing through this part of the district, it appears a vast swamp. One is struck, not only by the vast number of jheels, but also by the numerous tanks which one sees in all directions. These tanks, moreover, have generally one side or part of a side level with the surrounding ground, whilst the earth taken out in making the tank is formed into a bank round three sides, or three sides and part of the fourth. It is further noticeable that the open side is that by which the water drains off from the surrounding country. Now the intention of these numerous tanks is for the purpose of draining the adjoining fields, and rendering them arable. In various parts of the pergunnah, there are several low hills, covered with large blocks of stone, besides which there are low ranges of hills. A small nullah rising in the high ground, not far from the village of Barraah, passes through pergunnah Arail and opens into the Jumna. In the cold weather this nullah, close to the village of Barraah, is full of stagnant water, and close to the place where it flows into the Jumna is quite dry and sandy. The village of Barraah stands high, and in the rains, so far as the eye can reach, nothing is visible but one vast sheet of water. Mr. Court informs me, that from Barraah, so late as the month of December, he saw the

\* Lohghurra.

whole country under water, and that in November it was so deep, that it prevented his going to a particular village,\* which he wished to visit.

Soil.

The soil of most parts of Barraah that I passed through was black and clayey, resembling what is seen at the edges of jheels. It appears to take up readily, and to retain for a long time, water. In the hot weather, it dries and splits into deep and wide fissures. A piece of the black clay, not under water, when worked between the finger and thumb, has a greasy feel, and does not discolor or soil the fingers ;

when worked for some time, it does not get softer or more ductile, but crumbles into small pieces. I looked at numbers of bricks made in various parts of the pergunnah, but found of striking them, that none of them had the ring of a well-burnt brick. They were very easily broken and a fracture showed numerous calcined masses, some of which were evidently of lime; for the clay contains small pieces of kunkur, or carbonate of lime. There is a strong saline impregnation of the soil, which shows itself by efflorescence on the surface of the ground. Lime mixed with the water of this part of the country, soon crumbles away.

In March, 1856, some of the water from a puekka well

Water.

which was said to be poisonous to any animal that drank of it was sent

to the Chemical Examiner to Government for analysis, in consequence of a law suit then pending, in reference to the closing of the said well, on account of the deleterious qualities of its water. He reported that the water contained "no absolutely poisonous ingredient, but it holds "in solution so large a quantity of saline matter, that it "would prove very deleterious to any animal habitually "drinking it." He further stated, that the saline ingredients in the water consisted of sulphates, carbonates, and chlorides of lime, magnesia, and soda. There can be little doubt that the same salts, although perhaps in smaller proportions, would be found in most of the water. As might be expected, it is found very close to the surface of the soil. In several wells examined in February, it was only about six feet below the surface of the ground, and in the rains it is said to rise within one foot of the surface.

During the drying up of the rains, there is, as a matter

Diseases.

of course, very great sickness all over the pergunnah. The prevalent

diseases are intermittent and remittent fevers, dysentery,

and spleen disease. Whole villages are then struck down with fever, and the Tehseeldar's and Thannahdar's establishments are very frequently left with scarcely a man fit for duty. It is however worthy of remark, that in the thannah, which is at the bottom of a small rising ground, there is much more sickness than in the establishment of the Tehseelee, which is on the top of the same rising ground, yet there is not fifty yards distance between the two places. On this account Mr. Court is about to remove the thannah to the same level as the Tehseelee.

The people of Barrah appear to be very poor, and signs of their poverty are every where visible. In village after village one observes numerous empty and ruinous houses. One never sees a horse, camel or eckha, not even a bullock cart. The cattle that one does see employed in ploughing, are small and wretched looking, which is another cause that the cultivation of the soil is rendered more difficult. Such soil as that of Barrah would require strong, able cattle to turn it up. No sign of native wealth or prosperity is visible. I saw no gardens, no topes of trees, nor plantations; all available land is used for cultivation. I saw no Hindoo temple, nor Mahomedan mosque, except a miserable little Hindoo place of worship, which had been built by a buniah at the village of Barrah. Further, I observed none of the monuments of their own wealth, which natives delight to raise, except wells; and these, from the nearness of the water to the surface of the ground, are easily made, and at little cost. Yet even about these, there was an appearance of misery and decay, for, as before stated, the bricks used in their construction, however well burnt, soon crumble down to dust.

I am informed that the rate of Revenue settlement in pergunnah Barrah was originally fixed much too high. This naturally induced a high rate of rent, which has pro-

bably led to much misery, the people being forced to avail themselves of the cheapest food, and being unable to procure proper clothing and other necessaries. There are several villages in which the zemindar, being unable to pay the revenue, has left the pergunnah. Of such there are sixty-five villages now in the hands of the Collector. There are also several which had been given up by former zemindars, and resumed by Government, which have so much improved under this management, that they are now again farmed out to other zemindars.

The area of Barraah is 1,58,493 acres, and the population 63,490, which gives an average of 256 to the square mile. But the general population of the North-Western Provinces, according to the last census, is at the rate of 420 to the square mile, and in the district of Allahabad generally, it is at the rate of 493 to the square mile.

As has been stated, the form of Palsy before alluded to has, by the natives, been pretty generally attributed to their making large use of a particular kind of grain which they call Kessaree dal. It is the *Lathyrus Sativus* of English botanists. It is not unlike grain, and

is common enough all over the country, being often sown along with wheat or barley, and cut green for cattle. In Barraah the Kessaree dal is ground and made into bread. It is sometimes mixed with some other grain, as barley, but is generally taken alone, the people in fact not being able to afford any thing else. It is the cheapest food procurable in Barraah, and forms the chief support of the inhabitants from March till October. On the 7th February, in the bazar of Barra, wheat sold at the rate of fourteen seers per rupee, while Kessaree dal was at the rate of twenty-two. It grows without any labour or trouble, and

on damp, swampy ground that will bear no other crops. The land is merely ploughed once, and the seed thrown in, or the plant sows its own seed, which germinates freely next year, without any attention or labour being required. The moist nature of the soil should be noted in connection with the production of this poisonous *Lathyrus*, for it is stated by Loudon, in speaking of *Lathyrus Cicera* causing paralysis of the lower limbs in those who live on bread, partly made of it in some Continental States, that the plant grown on a strong moist soil is more injurious than that cultivated on one which is dry and light. (*Encyclopædia of Plants*, p. 620. *Taylor on Poisons*, p. 536.)

That the use of Kessaree dal, as an article of food, is apt to lead to paralysis of the lower limbs, Kessaree dal causes Palsy in other parts of India. appears to be very generally known to the inhabitants of all parts of India. Dr. K. W. Kirk, in his *Medical Topography of Upper Sindh*, says: "My attention was first attracted to it (paralysis) as follows:—A villager brought his wife, a woman of about thirty years of age, to my hospital, with paralysis of her lower extremities; she had been so afflicted for the last four years. I asked whether she had had a fall or a blow to cause the disease. 'Oh no,' said the man, 'it is from Kessaree; we are very poor, and she was obliged to eat it for five months on end.' I had never heard of such effects before from any grain, and asked whether it was good of its kind. Finding it was so, I sent the man into the bazar to bring me a handful, which I afterwards showed to some respectable natives, and was told that disease from its use is very common all over the country. The villager above alluded to, said that if they had sowed a better kind of grain it would have been plundered by the Beloochees from the hills, but they would not take this. I did not enter a village in Sindh where this Kessaree was not to be found in the bazar, and daily used by great numbers of poor

people, nor where several were not rendered most helpless objects by the use of it. Their general health seemed good, however, their only complaint being that they had no power in their legs, but they moved about by lifting themselves on their arms. All natives know that this dāl is a poison, and eat it only because it is cheap, thinking that they can stop in time to save themselves from its consequences.”—(*Kirk, pp. 59-60.*)

Colonel Sleeman states that in part of the Saugor Territories, in 1829 and two succeeding years, the wheat crop failed from various reasons, and during these three years the Kessaree remained uninjured and thrived with great luxuriance. In consequence it formed the only food of the people during the three years of famine. “In 1831 they reaped a rich crop of it from the blighted wheat fields, and subsisted upon its grain during that and the following years, giving the stalks and leaves only to their cattle. In 1833 the sad effects of this food began to manifest themselves. The younger part of the population of this and the surrounding villages, from the age of thirty downwards, began to be deprived of the use of their limbs below the waist by paralytic strokes; in all cases sudden, but some more severe than others. About half of this village (of both sexes) became affected during the years 1833-34, and many of them have lost the use of their lower limbs entirely and are unable to move. Since the year 1834 no new case has occurred, but no person once attacked had been found to recover the use of the limbs affected.” He further adds that “many of those he saw were fine-looking young men, of good caste and respectable family. They stated that their attack had come on suddenly, often while the person had been asleep, and without any previous warning. Males were said to be more subject to the disease than females. They believed that both horses and bullocks fed on Kessaree



lost the use of their limbs.”—(*Sleeman's Rambles and Recollections of an Indian Official*, Vol. I, pp. 134-135.)

Dr. Thomas Thomson, of the Calcutta Botanic Gardens, further informs me that he had met In Thibet. with examples of paralysis produced by the use of *Lathyrus Sativus* in Thibet, as he has noted in his Travels in the Himalayahs,—a work which unfortunately I have not by me at present in order to refer to it. From an intelligent educated Native (Parsidh Narain Singh, Tehseeldar of Hundya, zillah Allahabad), I have obtained the prevalent Native ideas in reference to Kessaree dâl. The lameness is supposed to be a mixture of Palsy and Rheumatism. Living on Kessaree dâl is supposed to be the predisposing (and exposure to cold, rain, and damp weather the exciting) cause of the disease. He says:—“The bhoosa of this grain may be given to cows and bullocks without any harm; but such is not the case with horses, who are affected (in consequence of eating it) with what is called by natives Koor-kooree. I do not know the English term for it; but with a view to convey a correct explanation of the disease, I respectfully beg to describe the symptoms which I personally observed in the horse suffering from the effects of eating the Kessaree bhoosa. Three hours after eating the bhoosa the animal was seized with convulsions in the legs, which lasted for a while. There was a total cessation of urinary evacuation, attended with a partial loss of voluntary motion in the legs. The horse, however, recovered by the introduction of a stiff wick moistened with chilly water into the urethra, and the administration of strong country spirits, called Phool sharab. The Natives consider Kessaree grain to be void of all nourishment, and declare it to have a peculiar effect upon the lower portion of the spine. It is also said that Kessaree grain makes the system susceptible of catching other diseases, such as scrofula,

Prevalent ideas of Natives of North-Western Provinces.

particularly in Patna district."—(*Letter from Pursidh Narain Singh.*)

Similar effects have been observed in Europe to follow the eating of other kinds of grain  
 Lathyrus known in Europe as a poison. produced by the same great natural order of plants, the *Fabiaceæ*. Thus, Doctor Taylor alludes to *Lathyrus Cicera* and *Ernum Ervilia* (bitter Vetch) as occasionally rendering bread poisonous. In some parts of the Continent a bread is made from the flour of the Lathyrus, which is so injurious in its effects that the use of it has frequently caused its prohibition by law. London states that, when mixed in equal parts with wheaten flour, it makes a good-looking bread, which, however, occasionally gives rise to weakness of the knees and spasmodic contractions of the muscles. Cattle and birds when fed on the seeds are said to become paralyzed. A more recent example of the poisonous effect of *Lathyrus Cicera* flour is furnished by Mr. Vilmorin:—He remarked that "the use of this bread for a few weeks produced complete paralysis of the lower extremities in a young and healthy man. Six or seven individuals of the same family who had eaten it suffered more or less from similar symptoms, and one had died. A physician who practised in the district remarked that paralytic affections were very common among the poor, who subsisted on this bread while they rarely occurred among the better classes. When the Lathyrus flour formed one-twelfth part, no inconvenience was observed to attend its use; in a proportion greater than this, it became injurious; and when it amounted to one-third part, the effect might be serious."—(*Ann. d. Hyg., Avril 1847, p. 469. Taylor on Poisons, p. 536.*)

Doctor Lindley also states that the seeds of *Ernum Ervilia*, another of the *Fabiaceæ*, mixed with flour, and made into bread, produce weakness of the extremities,

especially of the limbs, and render horses almost paralytic.  
—(*Vegetable Kingdom*, 2nd Edit., p. 548.)

Don, in the Gardener's Dictionary, says that the flour of *Lathyrus Sativus*, mixed with wheat flour in half the quantity, makes very good bread, but alone produces surprising rigidity of the limbs in those who use it for a continuance.

As to the treatment of cases of paralysis caused by the  
Treatment. use of *Lathyrus Sativus* I have little  
to say from practical experience.

Some eight cases have been under observation at the Dispensary. Six after staying a month went away, as they did not like the blisters and other means of cure employed. I tried in some of them strychnine; in others, blisters frequently repeated; in others, tonics. To all I gave generous diet. Two seemed to be somewhat benefited and could walk better, but in the others there was no perceptible improvement. Two men and a boy\* are now under treatment; one is much improved; he used to employ two sticks in walking, but can now do without assistance.

The Natives of Barrah do not appear to have any kind of treatment except rubbing the affected limbs with various liniments, one of which is composed of oil, the juice of garlic, and opium. They also fancy that eating pigeon's flesh is of use. But what is most remarkable is that they are fully persuaded that eating Kessaree dâl causes Palsy, and that it is an incurable disease; yet notwithstanding they continue to live on this grain, as their fathers and grandfathers did before them. It had been stated to Mr. Court that the paralytic affection prevalent at Barrah was of recent origin; but on asking the Kanoongoe (by name

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\* The boy is son of one of the men, and so much palsied that he walks with great difficulty by means of two sticks. He is not yet improved in any respect.

Bishesur), who had known the pergunnah for twenty years past, I was informed that the disease had to his knowledge always existed, although he thought that of late it had become more common, and villages in which formerly there were no cripples now contain several.

I ought to state that I obtained specimens of all the grains found in the bazaar at Barraah, which I submitted to Dr. T. Thomson, of the Calcutta Botanic Gardens, for examination, under the impression that some of them might also be unwholesome. In reply he writes:—"The different grains sent seem all good, and there is no doubt, I believe, that the *Lathyrus* is the cause of disease." I had been informed at Barraah by numbers of the people that wheat of the usual white colour, when sown in the pergunnah, became red. It was also stated that the red seed produced in Barraah, if sown in another part or district, again became white. This of course I have not yet been able to test, but I asked Dr. Thomson regarding it, and he says in reply:—"The transformation of white wheat into red in one generation seems strange and scarcely credible. I shall send the specimens Home, and ask about the existence of anything similar elsewhere."

The remedy for the eradication of this form of Palsy is very evident, although how to apply that remedy is confessedly more difficult. All that is of course necessary is to prevent the people eating the poisonous grain, or to get them to use it very much diluted with wholesome flour, and the spread of the disease is at once arrested. The latter of these ideas is doubtless impracticable, seeing that the people of Barraah know very well that in eating Kessaree dâl they are eating poison. It would further be quite out of place for me to discuss here the propriety or otherwise of prohibiting by legal enactment the use of this grain.

I may, however, mention another scheme of manifest utility, which is to induce the people of this and of other pergunnahs in which the disease prevails to abandon the cultivation of Kessaree dâl and to substitute some other grain. The drainage of the country also would be an immense boon, and would render the land available for many crops which it cannot now bear. I suspect, however, that such a proposition involves too great an outlay for the improvement of an unimportant part of the district. Whether the drainage could be easily effected by deepening the nullah that now exists I am unable to say.

Although perhaps this disease does not admit of being greatly benefited by medicines, yet, when the very unhealthy condition of the whole pergunnah is considered, and when the many cases of disease that there exist are taken into account, it must be evident how greatly a good Branch Dispensary is here required. Such an institution, if well conducted by a trustworthy Native Doctor of experience—one who by his skill and attention, should gain the confidence and esteem of the people—would contribute much to the comfort of many sick persons, who are now left without medicine or advice or the chance of obtaining either.

JAS. IRVING,  
*Civil Assistant Surgeon.*

V.—From C. CHESTER, ESQ., *Commissioner 4th Division, to C. B. THORNHILL, ESQ., Officiating Secretary to Government, North-Western Provinces.*—Dated Allahabad, the 20th April, 1857,—No. 571 of 1857.

HEREWITH I have the honor to forward, for the considera-

tion and orders of His Honor the Lieutenant-Governor, the correspondence noted in the margin\* relating to a species of Paralysis prevalent in pergunnah Barrah.

\* Report by Dr. Irving, dated 29th March, 1857. Magistrate and Collector of Allahabad, to Commissioner, No. 581, dated 16th instant.

2.—I can add nothing to Dr. Irving's full and interesting Report. There is not the least doubt that the disease is caused by eating the Kessaree. The people are quite aware of this fact. They will nevertheless continue to cultivate and use the poisonous food, in spite of Mr. Court's best exertions to dissuade them from doing so. I fear that the cultivation of the Kessaree cannot be authoritatively prohibited; and I am unable to recommend Dr. Irving's proposal to drain the country, for it is not long ago that embankments were directed to be made in order to retain water in the pergunnah, and there is no reason to suppose that marsh malaria has anything to do with this peculiar disease.

3.—I earnestly recommend to His Honor's favorable consideration the proposal to establish a Dispensary at Barrah for the express purpose of receiving and treating persons afflicted with this Paralysis, and concur with Mr. Court in thinking that the building should be large enough to accommodate no less than thirty in-door patients.

C. CHESTER,  
*Commissioner.*

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**No. 11.****REPORT ON MAHAMURREE AND SMALL-POX IN GURHWAL.**

BY DR. F. PEARSON, *Assistant-Surgeon, Superintendent of Vaccine, Rohilcund, Kumaon, and Gurhwal; Sanitary Officer for Gurhwal; and Superintendent of Pilgrim Dispensaries.*

IN presenting, for the consideration of His Honor the Lieutenant-Governor, my Annual Report for the year 1860-61, I will take a brief review of what has been accomplished, commencing from the date of my appointment as Sanitary Officer for Gurhwal, towards the latter end of 1852. I will first treat of Mahamurree.

2. *Mahamurree*.—The first official Report on the subject of Mahamurree is dated April, 1836. That Report, written by Colonel G. E. Gowan, Commissioner of Kumaon, states that Mahamurree had prevailed the previous year in Gurhwal, in the puttees of Nagpore, Budhan, and Chandpore; that, according to popular belief, this disease first showed itself, in the puttees of Bamsoo and Mykhunda, in 1823; that it was considered by Assistant-Surgeon Bell, from hearsay report, to be a putrid fever resembling plague.

Beyond this meagre account of its origin there is no evidence on record.

Not until 1847 is the disease again mentioned officially. It had then crept on as far as the Johlea puttee, and in the same year attacked a village in Bora-ke-oar in Kumaon. In 1848 the disease was prevalent in Dampoor puttee, Kumaon; and in 1849, had established itself in the Chuprakot, in Dewalgurh puttees in Gurhwal. It will thus be seen, by referring to the map of Kumaon and Gurhwal, that Mahamurree was gradually year by year extending its boundaries. The number of people annually

carried off by the pestilence was not very great ; yet there was cause for anxiety and alarm, more as regards the future than the present. Accordingly, in 1849, Mr. Strachey, the then Senior Assistant Commissioner, applied to Government to sanction an enquiry into the causes, &c., of the disease. The result of this application was, that Dr. Renny, Superintending Surgeon, Meerut Circle, was deputed to carry out the investigation, and he arrived in Gurlwal for that purpose in May, 1850. In the puttee of Chuprakot, Dr. Renny saw some few cases of the disease, and pronounced it to be a malignant fever of a typhus character, ascribing poverty, filth, and bad food as its causes, and recommending sanitary measures as the remedy. In 1851 mahamurrec again appeared in Dampoor puttee, Kumaon, and I was sent to investigate and report upon it. I saw several cases, and pronounced the disease to be plague, in no way differing from the Egyptian Plague. Those attacked with the disease almost invariably died,—death taking place on the second or third day: buboes in the groins and armpits, carbuncles between the shoulders, pterihæ, spitting of blood, oppression and pain about the proecordia, severe headache, great prostration, thirst, feverishness, yellowness of skin, &c., being symptoms prominent in all. I fully coincided with Dr. Renny as to the causes of the disease, and that the proper remedy was sanitary reform. The cases that I saw were apparently of a more violent type than Dr. Renny met with ; hence our difference of opinion as to the nature of the disease, which after all is a mere difference of degree, inasmuch as Plague is “Typhus Oravissima.” In the autumn of 1852, I was again deputed, in conjunction with Dr. Francis, to report upon the disease, it having appeared with great violence in Chuprakot puttee, Gurlwal. This time we were fortunate in meeting with a large number of cases, and also in having the opportunity of conducting some



*post mortem* dissections. In each body examined we found the vital organs highly congested, the blood in a fluid, dark, and decomposed state, and the serous cavities loaded with serous effusion. We both agreed that the disease was plague, similar to the Egyptian; that it was infectious and contagious, and that the proper remedy was sanitary reform in the villages, the chief cause of the disease being filth. At the latter end of 1852, I was appointed Sanitary Officer for Gurhwal, at the time mahamurree was sweeping off whole villages, and extending its ravages in every direction. In conjunction with Mr. Strachey, principles of action were laid down. Mr. Strachey threw his whole energy into the movement. One month was given to the people to turn all the cattle out of their villages, to sweep, white-wash and ventilate; in fact, to convert their homes into an approach to something civilized. The month expired and I commenced my tour of inspection. The work of reform had proceeded but slowly; the people had hardly realized the reality of the order. Four or five startling *fincs*, however, electrified them into instant obedience, and before another month had elapsed, to use the people's own expression, you might have eaten your dinner off the very stones of the villages. Mahamurree had now no dwelling place, and had departed.

For the two subsequent years my time was employed in constantly travelling about the district, seeing that sanitary reform was duly kept up. Mahamurree had not again shown its face. In the cold season of 1854, I was appointed Superintendent of Vaccine, Robileund, in addition to my other duties, and had to leave Gurhwal for some months. On my return in April, 1855, I found that sanitary reform had been a good deal neglected. But there was no mahamurree, and the cleanliness, as compared with former years, was great. The Commissioner was opposed to measures of punishment for neglect of sanitary rules, hoping that the people would, of their own free will, pursue them. Thus matters progress-

ed until 1857, the mutiny year, when all sanitary measures were in-abeyance, and the people began again to revel in all the filth of former years. In the Spring of 1860, Plague once more burst upon them with fearful strokes, destroying close upon one thousand lives. Again sanitary rules became the law of the land, and a second time, ere two months had passed, the disease had melted away before them. I will now give a description of a Gurhwal village and its occupants. We will take, as our illustration, a village of a dozen houses : they are all stone built, and double-storied. In the lower story (ground floor) live the cattle ; floor well saturated with urine and dung ; dung stacked up against every side of every house, and dung up to your knees wherever you step. In the upper story lives the family ; say a husband and wife with four children. The room is about eight feet square, with a sloping roof so low that you cannot stand upright in any part ; and not a single aperture for ventilation, except the small door by which you enter, and a little round hole in the roof, about the size of the palm of one's hand, which, as well as the door, are carefully closed at night, so as to make all snug and warm. But, in addition to the family, the room has to provide accommodation for all the stores of grain, besides a few agricultural and domestic implements. The village itself is surrounded by hemp and cucumbers trained up long poles, both serving to impede any free circulation of air. The immediate vicinity of the village is converted into one huge cloaca, foul and loathsome.

It is hardly an exaggeration to say the people never wash.

Their clothes consist of a woollen or hempen blanket, one per annum, and a rag round the loins.

Their food consists of a morning and evening meal of bread, made of the coarse kinds of grains, with some salt and vegetables. They indulge but seldom in milk, ghee, or meat, such luxuries being reserved for the grand occasions

of births, marriages, and deaths. Such are the habits and domestic economy of the Garhwal village paharee when at home.

He thus lives, not because he is a poor man, but from habit and choice. I suppose it would be difficult to find any peasantry in the world more really free from the *res augusta domi* : he is the owner of a well built stone house ; has as much land as he wants at an easy rental ; keeps his flocks and herds, and is, in every sense of the word, an independent man. Each house, as it stands imbedded in its own reeking mass of manure, puts one in mind of the cucumber frames at home, but with the disadvantage of not having so much light, and never being ventilated.

Under the circumstances described, it is not difficult to conceive the probability of Plague and its kindred disease arising. The only wonder is how the people ever escape them. The explanation I believe to be the fact of their constant out-door life in field occupations, and their not thus having always to inhale the poisonous air of the village. The wonderful rapidity with which mahamurree carries off its victims is also easily accounted for by the want of stamina which such a mode of life and diet necessarily induce.

I do not ever anticipate any great epidemic spread of the Plague ; all its causes are so evidently endemic, and the people, in their dread and terror of it, do exactly what, under the circumstances, ought to be done. They fly from the infected village into the jungles and break up into separate families, holding no communication with each other. If they would but take the warning of the disease that is always sent them, viz., rats dying and dead all over the village, and fly at once, they might escape the pestilence altogether ; but they wait until one of themselves sickens or dies, and not until then will they go. They are a strange race ; they know of the warning as a sure precursor, and yet they remain. They dislike the trouble

and loss of leaving the village, and so they sit and look at the rats dying and wait the Plague's arrival. I can only explain the death of the rats, by supposing the generation of some poison peculiarly affecting them, for it does not attack the dogs or cats; of the fact of the rats dying there is no doubt, for I have witnessed it many times.

It is a sad sight to see the unfortunate people driven out of their villages into the forest; for immediately they leave, the wild beasts come and take possession of the crops, and, occasionally, even the stores of grain in the houses, inflicting heavy losses upon the owners. The chief cause of mahamurree is most undoubtedly filth: the filth absent, I believe it would be impossible for the disease to arise or exist. On two distinct marked occasions have sanitary measures shown themselves all-powerful for the eradication of the disease when raging in full vigour. This has been twice conclusively proved. In 1852 the disease was raging, and within two months, under sanitary measures, the plague had vanished. During the intervening years up to 1860, there was no return of the disease; but by that time the people had again fallen into all their old filthy habits, and plague again appeared. Once more sanitary measures were enforced, and the disease, a second time within two months, had melted away, and has not been heard of since. It must be remembered that up to 1852 mahamurree had been constantly present for the six previous years, and for probably many years before, but until 1847 it had not begun to attract official notice. It has been often suggested that the grain might cause the disease, but this supposition is completely set aside by the fact of the people, when they fly from their village, taking the grain with them and there consuming it, without falling sick. The disease attacks equally villages of high and low elevation and of every aspect. There is only one unvarying similarity between all attacked and that is filth. The disease

generally arises in the rainy season, at the time one would naturally expect it, when the air is hot and moist, and most favorable to vegetable and animal decomposition.

In treating the disease, the first thing necessary is immediate removal of the patient from the infected village into pure air. Then, without delay, commence a system of constant nutrition and stimulants,—brandy, rum, quinine in large doses, ammonia, milk, soup, &c. On no other system is there a chance of recovery. All measures of depletion only hasten death. The disease is almost invariably fatal; for it must be borne in mind that the actual outbreak of the fever is but the mere explosion of what has been silently but surely poisoning the blood for months and probably years previously: treatment under such circumstances can hold out but small hopes of success. Our attention must be directed chiefly to the prevention of the disease.

At first I was in the habit of burning down all infected houses; I have since discovered that such a step is not necessary. If the village is thoroughly cleaned and ventilated (after having been left vacant for some three or four months ere again being inhabited) it is sufficient. And when there has been no fresh case of the disease amongst the people for two months, they may return to their village without any fear of another outbreak. This I have ascertained from experience. The present sanitary state of the district is, upon the whole, about as good as one can expect, considering the small amount of time I have to devote to its inspection. Cow-sheds 100 feet from the village are as a general rule, everywhere erected; and when I am marching through the district, all those villagers who are within the possibilities of inspection turn the cattle out of the village into them for the time being; and the villages are swept and white-washed. Even this small amount of cleaning once or twice a year I believe would be enough to prevent the disease; for it appears to me that it takes a

long continuance and large accumulation of filth to produce an air sufficiently poisoned and contaminated to produce an outbreak.

*Dispensaries.*—Of these there are seven. The parent Dispensary is located at Sreenugger, and six branches placed at intervals of about 40 miles from one another along the Pilgrim Road. These institutions are supported entirely out of the Kedarnath and Budrinath Sudaburt Endowment Funds. Their history is as follows:—At various periods lands had been bequeathed by former Governments and charitable individuals for the purpose of forming a Fund, wherefrom to provide a day's meal at different points along the road to all needy pilgrims seeking it. The stations of distribution were few and far between, so much so, as to be practically useless to the really needy; there was much fraud and villainy connected with the distribution, and the result was that but a small modicum ever found its way into the pilgrim's stomach, whilst priests grew sleek and fat. Under these circumstances, Mr. Strachey, in 1852, proposed that the administration of this Fund, amounting to about Rs. 6,000 per annum, should be taken out of temple hands, and that the Fund itself should be employed in providing and maintaining Dispensaries for the relief of the sick and needy. The result has fully established the wisdom and excellence of the change, for it is no exaggeration to say that hundreds of lives are now annually saved. The pilgrims are mostly old men and women, whose grains of sand are well nigh run; the road is rough and stony, one day in the hot malarious valley, next amongst the ice and snow, always steep and hard to climb, and food both coarse and dear. Fill in this picture of fatigue, of heat and cold, of hunger and thirst, with the bruised and swollen feet, dysentery, diarrhoea, and fever in all its kindred forms, and what wonder that they laid down and died. Scenes such as these, however, cannot occur now-a-days. A pilgrim can never

be further away than 20 miles from a Dispensary, and arrangements are made for conveying all such as fall by the way to the nearest branch, where they are maintained and treated until able to proceed on their journey. To feel and fully appreciate the value of these institutions, it is only necessary to visit them during the pilgrim season, and here the grateful outbursts from well-filled wards.

*Vaccination.*—I made my first commencement of vaccination in 1853, at the village of Ramree in the North of Gurhwal. After two whole days spent in useless endeavours to persuade its inhabitants to accept it, I determined upon waiting the arrival of Mr. Strachey. At his persuasion they consented to take it. From this date one village after another followed the good example, and vaccine flourished. Not but what, here and there, from time to time, arose an opponent to do battle against the innovation; for inoculators were abroad, their occupation gone, vilifying the new prophylactic, and warning their native brethren against it. The reign of vaccine was now, however, fairly established. The District was mapped out into six divisions; a Vaccinator was told off to each; the people came forward readily, and by 1860 the whole population had been protected. Last year there was one death from small-pox, and one only amongst a population numbering about 2,50,000 over an extent of country 5,000 square miles in extent. I affirm that there is not a country in Europe, not even excepting Prussia, where vaccination has been for many years past compulsory, that can show a more favorable result, and this at a cost of six Vaccinators on Rs. 10 each per mensem, or £72 per annum. But this does not by any means represent all the advantages obtained, for, during these seven years, the whole of the North-Western Provinces and Bengal have been supplied with perpetual relays of fresh vaccine virus, showering its blessings upon untold thousands. It is chiefly in

this light that the value of the Hill Establishment must be regarded, for here are the seed-beds, the nurseries from which our supplies, retaining their activity unimpaired, are raised. No amount of supplies, from home would take their place. To rely upon England we should be doomed to perpetual vexation and disappointment, for not one batch in ten arrives effective and uninjured by the heat of the passage. Previous to the introduction of vaccination in Gurhwal, the custom of the people was to protect themselves by inoculation. The real secret of the success of vaccination was the fact discovered by the people of the powerlessness of inoculation on a successfully vaccinated subject. I had given my consent to the people to try it in such cases, and was willing to take my stand on the results. The professional inoculators were obliged to admit the fact of the efficiency of the innovation, but, as their last subterfuge, pronounced it would not be permanent. However, vaccination was declared to have now the day, and it triumphed and prospered accordingly. I was much amused once by a bunniah coming to me to complain that his child, who had been successfully vaccinated, would not take inoculation, and what was to be done. Remembering the opposition of former days, it is a source of gratification to find people now humbly asking for vaccination. Within the last few weeks, I have had petitions from people not in our own territories, from Thibet and Teree Rajah's Gurhwal, begging for English vaccination. Petitions from our own subjects are now common enough. My Hill Establishment consists of but six Vaccinators, enough and only enough for Gurhwal. In Kumaon small-pox, epidemic and inoculated, still sweeps off its hundreds annually. If His Honor the Lieutenant-Governor would allow me to reduce three Native Superintendents in Rohilkund, and employ the Rs. 60 thus saved on six Vaccinators in Kumaon, I would engage that, within the next ten years, small-pox should be as little known



there as in Gurhwal of 1860. This brings me to another proposition. In Rohileund there are at present 30 Vaccinators, one to each Tehseel; five Native Superintendents, one to each Zillah; and one Department Superintendent for the whole of the Districts. The population of Rohileund numbers five millions; six Vaccinators to one million! a mere drop in the ocean. . . Amongst such swarms the Vaccinators are lost, their presence unheeded and unfelt. My belief is, that for vaccination ever to be successfully carried out on any large scale, it is first of all necessary to make the people believe in it. When they see that it has a really protective power against small-pox, they will seek it for themselves and children, and then all difficulty has vanished: for then their own native practitioners, bhaidis and hukeems, can be taught the art, and supplied with virus, and would earn no despicable livelihood if they charged but one anna for each successful case. This should be our constant aim, for it is impossible to suppose that Government can, at its own expense, undertake to keep vaccinated 200 millions of people. The people must be taught to do it for themselves, and the first step is to make them want it. I therefore strongly recommend that I may be allowed to concentrate the whole strength of my Rohileund Establishment upon the two Zillahs of Moradabad and Bijnour; and I have but little doubt in my own mind that, in the course of the next few years, whilst small-pox is raging all round their boundaries, those two Zillahs shall present the astounding spectacle, astounding to the minds of the natives, of a clean bill of health. It is only by making some such profound impression upon their minds, that they can be stirred out of their apathy and disbelief. Now that the Vaccinators (in Rohileund) are sparse and scattered, the people constantly refuse their services and pass them on to the next village, there again perhaps to undergo the same process. The villagers know nothing about vaccination and care less. Under my pro-

posed system of concentration of Vaccinators, their influence from numbers would be greater; each village would be sure of a visit every season, and would see the hopelessness of perpetually attempting to avoid accepting the Vaccinator's services. The reduction of three Native Superintendents, then in excess, would give the sum necessary for the six Vaccinators in Kumaon. I should then have nearly three Vaccinators for each Tehseel in Moradabad and Bijnour, ample according to my calculation for the end desired. I have always labored to impress upon the Vaccinators, that the object of vaccination is not numbers or returns, but successful vaccination, that is, complete protection to the individual vaccinated: and all arrangements are made to meet that view of the case. For, I regard all vaccine returns under ordinary circumstances, as worthless, and I therefore hold out no inducements to lie. Each Vaccinator is rewarded by prizes or punished by fines, entirely by the number and quality of the crusts he sends me: upon these alone is he judged and weighed. He can only manufacture good vaccine crust by good vaccination, so here is no source of deception. Remove all object for deceiving, and then there is some chance of what returns he does send being reliable. I believe mine to be as near the truth as it is possible to get them. In Rohilkund, the numbers vaccinated this season have been, owing to the famine, smaller than usual, *viz.*, in all 28,151. Of this number 16,346 were successful; 6,359 unsuccessful; 2,491 doubtful; and 2,955 result unknown. In the hills there were vaccinated, 11,121; of whom 9,801 were successful; 567 unsuccessful; 461 doubtful; and 292 result unknown; making a grand total of 39,272 vaccinated, giving an average of upwards of 250 operations per mensem by each Vaccinator, which is nearly as much as one man can accomplish properly. From the Hill Depôt were distributed 7,794 crusts, 1,568 points, and 191 glasses, a considerable increase on former

years, and from all quarters letters have been received acknowledging their excellence. I regret that throughout this Report, I have been unable to give more figures and statistics : but reliable statistics are unobtainable. I have consequently been obliged to make only general statements, but they may be accepted, as in the main, trustworthy.

I have, &c.,

F. PEARSON, *Asst. Surgeon,*

*Supdt. Vaccine, Rohilkund, Kumaon and Gurhwal,*  
*say Officer, Gurhwal, & Supdt. of Pilgrim Dispensaries.*

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**No. 12.****REPORT ON THE EPIDEMIC CHOLERA, WHICH AP-  
PEARED IN THE AGRA CENTRAL PRISON  
IN JULY, 1861.**

By DR. G. R. PLAYFAIR,

*Civil Surgeon at Agra.*

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HAVING had medical charge of the Agra Central Prison from the 1st to the 19th July inclusive, during the absence; on leave, of the Superintendent, Dr. W. Walker, I am anxious to report on the Epidemic Cholera which commenced on the 6th of July, and was treated by me till the 20th of the same month, as in a proportion of the 122 cases admitted during that period, I employed a practice which I had twice before followed with considerable success, and, in the present instance, the results are strongly in its favor.

Future experience must prove whether they could be equally so in every type of cholera.

This disease being so fatal, and so little understood, it is scarcely necessary to apologize for bringing to notice any method of treatment which appears to give better results than others, even although the reason of its success may not be clearly understood.

I have now had opportunities of observation during five cholera epidemics, two of them among Europeans. I have also seen a great number of cases in private practice, and I am convinced that there is any early stage of true cholera which yields to prompt and vigorous treatment.

I have never been able to determine what is the longest period of the existence of this early and curable stage; probably its very first symptoms,—want of appetite, aversion to food, feelings of depression and fatigue,—are frequently overlooked; but I can state positively that I have frequently

seen cases which, within half an hour from the first seizure (and without any previous diarrhoea) have passed into the second stage,—that of collapse, which is usually so fatal.

The first stage of cholera commences with a feeling of depression, a sensation of relaxation in the abdomen, alternating with a sensation of twisting and cramps; there is a loose motion, natural in color, quickly followed by others, each more loose than the preceding; there is at the same time nausea and vomiting, first of the contents of the stomach, and afterwards of a watery fluid: at last both ejections and dejections have that appearance so well likened to “conjee-water.”

When these characteristic stools are established, the case most probably has fully merged into the second stage.

It is during the first stage, before the patient has decidedly entered the second, that a strong stimulant, with some opium and Cayenne pepper, does, in a majority of instances, check the disease.

Sometimes, even if the stage of collapse has recently commenced when the patient is first seen, *viz.*, the eyes more sunken than in health; the extremities cold as far as the wrists and ancles; thirst present, and the face bearing an anxious expression, a strong stimulant may suffice to arrest the disease, if the patient be neither a drunkard nor an opium-eater.

The strength of the stimulant to be administered must be proportioned to the age and habits of the patient.

In gaining my first experience of cholera, I was on board ship alone, without even the assistance of an apothecary or compounder, in medical charge of upwards of 200 European soldiers, volunteers, old residents in India, men to most of whom a plain glass full of raw rum had no “nip,” and who were in the habit of mixing chillies with their spirits.

I was obliged to treat them with rum mixed with a very strong infusion of Cayenne pepper, cloves, cardamoms and

other aromatics, giving a large wine glass-full for a first dose.

In private practice I find brandy most easily procured and perfectly efficient.

The quantity must be proportioned to the condition of the patient, usually half to a whole wine glass-full of brandy for an adult, with 20 drops of laudanum and a small pinch (2 grains) of Cayenne pepper in half a tumbler of very hot water, suffices to remove all the symptoms.

After taking the dose, it is essential that the patient should lie down, and remain quite in a darkened room.

To a child of 6 or 8 years old, I would administer a desert-spoonful of brandy, 5 drops of laudanum, and  $\frac{1}{2}$  a grain of Cayenne pepper, in hot water.

In treating children still younger, I substitute peppermint oil for the Cayenne pepper, and give a suitable quantity of opium and brandy.

I repeat, that cholera, if seen in an early stage, and treated promptly, is generally under control.

It is in this stage that that admirable compound, the cholera pill, essentially a stimulant, does so much good, and it is the only form in which cholera medicine could be conveniently and extensively distributed; but where it is possible, as in a prison, or barrack, or in private practice, a fluid stimulant is preferable, because being more speedily absorbed, it acts more quickly.

The second stage, or that of collapse, is the period which is so fatal in cholera, too frequently resisting every variety of treatment; and it is for the treatment of this stage that I particularly wish to bring into notice a remedy which, I believe, very much lessens the average mortality.

I do not assume any originality; the practice was first suggested by Dr. Annesley, but the proper class of cases in which to use it have not been attended to, nor has the application of the remedy been understood.

I have no theory of cholera to add to the innumerable guesses already made; I do not even pretend wholly to understand how the treatment I have tried acts; but as far as my experience extends, and when, from being in sole charge, I had an opportunity of trying it, (*viz.*, in two distinct epidemics in January and June, 1845, and again in last July,) I agree with Dr. Annesley when he writes. "That venesection (in cholera) ought never to be neglected."

In all cases of cholera, which have passed the incipient stage of nausea, vomiting, purging, and sometimes abdominal cramps, and entered the fatal stage of collapse, one symptom is patent, some cause has weakened the force of the circulation; the heart has lost its power of sending the blood as far as the termination of the extremities, or sends it with diminished force; the arms and legs of the patient, as far as the elbows and knees, become cold, and the hands and feet are shrivelled, and puckered.

The pulse of the artery at the wrist is diminished in volume and force.

The superficial veins are empty and flat, and appear like tape stretched beneath the skin. In the superficial veins of the head a totally different appearance is generally seen;—they are swollen and twisted from the quantity of blood in them.

In short, the heart's action is enfeebled and oppressed;—it does not receive the contents of the superior and inferior vena canals so quickly as is natural; nor does it send out the blood from its left cavities with sufficient force to pass, in the extremely distant capillaries, from the arteries into the veins: hence the loss of animal heat, the coldness of the skin, the shrivelling of the extremities, the relaxation of the tissues, the copious sweats.

What is the condition of the blood itself? It is black, thickened; and if a vein is opened, it oozes out like treacle. In the very early stage of this stagnation of the blood,—this enervation of the muscular power of the heart,—a

powerful stimulant *appears* to suffice to increase the heart's action, and remove the danger of the attack. At a more advanced stage I believe a powerful stimulant to be equally necessary; but it does not now suffice of itself; there is greater resistance in the state of the blood; it will not move on; and to assist the action of the stimulant, and lessen the resistance, it is necessary to open a vein.

In cases so treated; where the circulation is restored by the combined action of the stimulant and venesection, the probability of the patient's recovery is very much increased.

Dr. Annesley was the first to point out the necessity of blood-letting to relieve the congestion of the heart.

The remedy has been tried by many, both in England and India; and has never been reported as successful.

This result, I believe, arises solely from ignorance of the proper method of practising it, and from the cases in which it should be tried having never been properly understood.

*1st.*—It is useless to attempt venesection if no pulse is perceptible at the wrist.

*2nd.*—The object is not to deplete, as if to relieve an inflammation, but merely to lessen the resistance to the action of the stimulant to the contraction and reinvigorated action of the heart.

I might quote numerous writers to show how much the object of bleeding in cholera has been misunderstood; even Dr. Annesley only vaguely mentions, "Blood is to be drawn, a few ounces, to thirty."

I will only instance the practice of one of the most talented medical officers whoever came to India,—the late Mr. Twining,—because he gives his cases in a clinical form; enabling me to particularize the usual amount of blood drawn, and from which he inferred the practice was hurtful.

In every case, where bleeding in the low form of cholera is mentioned, the quantities ordered to be abstracted would



certainly (in 1861) lead one to infer that the heart's action was excited, the pulse full and hard, and bounding.

Such I have never found the case either in the incipient, or the collapsed stage of the disease.

Sixteen, twenty, twenty-four ounces, are the amounts Mr. Twining usually ordered to be abstracted.

In using venesection as a remedy in cholera *eight* ounces is the largest quantity I ever drew;—in the recent epidemic, *seven* ounces was the largest amount, and only in two cases, usually *three* to *four* ounces was the extent of the bleeding.

Considering "bleeding" in cholera *merely* in reference to its depressing effects on the heart's action, *when* excited, it may seem unintelligible, that I should recommend it for the purpose of exciting the action of that organ; but this not more paradoxical than, when first introduced, appeared the practice of giving stimulants in some cases of congestion or apoplexy of the brain, the prevailing time-honored remedy being to abstract blood.

I do not pretend to explain satisfactorily the cause of the success of venesection in cholera; but the facts I have seen are, that, combined with plain, quickly-acting stimulants, a greater number of recoveries ensue than from any other practice I have followed.

I will describe a case. A patient is admitted; his eyes are sunken; there is livid discoloration beneath them; his features are so changed that his identity is doubtful; the body is covered with a cold perspiration; the vomiting and purging have ceased; there may or may not be cramps in the extremities; the voice is an anxious whisper, constantly giving utterance to an eager longing for water to quench the agonising thirst; there is no anxiety expressed as to recovery,—the absence of this natural feeling is one of the diagnostic signs of an advanced stage of collapse;—the pulse at the wrist is very weak and small.

Half a drachm of chloroform in a little water, or a suitable dose of any other powerful stimulant, is instantly administered without opium, and repeated, as may be necessary, every 10, 15 or 30 minutes.

A bandage is placed on the arm above the elbow; the veins of the fore-arms *slowly distend*; one of them is opened some black thickened blood drops out, then oozes out, or altogether stops. The fore-arm is constantly rubbed from the wrist towards the opening in the vein. Each time a few drops are forced out; continue the frictions; the blood again commences to drop; it exhibits a tendency to flow, by the droppings becoming more frequent the color of the blood too becomes more natural. Persevere with the frictions;—repeat the dose of chloroform. At last the flow becomes a stream, which you can hear dropping into the dish, or the blood spurts out from the vein; that instant bind up the arm, and continue the stimulants.

If you enquire, your patient will say that the feeling of oppression is relieved; frequently he will volunteer this information. If you visit him in half an hour or less, you will find that the animal heat is returning to the extremities.

You can now feel them warm at the calf of the leg and below the elbow; if you have patience to continue beside him, you can perceive the progress of the improvement, and in a very few hours the hands are warm, and the pulse at the wrist improved in strength. The circulation has been re-established.

I do not assert that every patient so treated recovers, but the facts prove that the probability of recovery in reference to this year's epidemic,—one, too, of a marked low type,—was increased 20 per cent.

Having stated my views and practice in the collapsed stage of cholera, I proceed to give the returns of cases treated.

I tried three methods:—

1st,—The practice usually followed; viz., stimulants with opium, at an early stage, in the form of cholera pills, ether, or ammonia. Stimulants without opium in the collapsed stage; artificial heat, frictions, &c.

2nd,—In addition to the above, saline injections of common salt and carbonate of soda in very hot water every quarter of an hour.

3rd,—Diffusible, (quickly acting) stimulants, of which I prefer chloroform, with bleeding, if on admission the pulse at the wrist was perceptible.

I have purposely omitted any particular description of the second of these, as although it sometimes gives good results, even when no pulse is perceptible at the wrist, the practice being tedious, and requiring very careful administration, is not well suited to a Native Hospital, where many of the details of treatment are necessarily left to Native Assistants.

Nor do I enlarge on the 3rd stage of cholera, with its fever, local congestions, &c., the treatment being such as is usually followed—:

*One hundred and twenty-two cases of Cholera Morbus treated in the Agra Central Prison, from 6th to 19th July, 1861 inclusive.*

|                                | Admitted. | Died. | Cured. | Percentage Deaths. | Percentage Cured. |
|--------------------------------|-----------|-------|--------|--------------------|-------------------|
| 1.—Usual treatment, ...        | 58        | 26    | 32     | 44·82              | 55·18             |
| 2.—In addition Saline Enemata. | 29        | 12    | 17     | 41·37              | 58·63             |
| 3.—Stimulants—Venesection, ... | 35        | 8     | 27     | 22·85              | 77·15             |

## NOTE.

THERE were 123 cases admitted; the one I have left out was treated by venesection; he is recovering, but as he has not been discharged, I could not enter him as cured, and, in consequence of my going away on leave, I could not longer delay this report.

These figures show that, during the epidemic,—one of a low type in which bleeding has been considered particularly hurtful,—the treatment by venesection has given results 20 per cent. in its favor. It ought to be known, in order to appreciate the results, that each of the 122 cases was one of true Cholera Morbus.

I was purposely careful that no cases were admitted about which there could be any doubt.

All the prisoners, who were sent into Hospital from the various wards, for vomiting and purging, were kept in the verandahs of the Hospital until the disease proved to be true cholera, by the progress of the symptoms towards collapse, and every case in the above table had either entered on the stage of collapse, or was on admittance considerably advanced in it.

There may have been, and in fact there were, many more cases of cholera than have been entered in the registers, but they were cured in the early stage of the disease by the prompt administration of the cholera pill or other stimulants, and it is only such cases as did not yield to the early treatment, and advanced to the second stage, which have been included in the 122 admissions.

So carefully did I exclude spurious cases, that in one which I believed was true cholera I opened a vein. The blood immediately flowed in a stream. I instantly bound up the arm and did not admit the patient.

In another instance the patient so evidently exaggerated all the symptoms, that I believed he was pretending illness to escape work,—a very common practice among the prisoners. I therefore passed on, but was very much

vexed when, a few hours later, I found him far advanced in collapse, and his features so changed, that I could scarcely believe he was the same person; in fact, I could not recognize him. I am very happy to add that he recovered.

Another point worthy of noting is, that the 122 cases were treated during the first few weeks of the epidemic, when, as is well known, the disease is most virulent, and most difficult to cure.

In conclusion, I would earnestly request that whenever another cholera epidemic breaks out in the Agra Central Prison, I may be permitted to have the use of a separate ward, and the treatment of half the cases, in order to test further the merits of venesection in cholera.

*The 25th September,*  
1861.

G. R. PLAYFAIR, M. D.,  
*Civil Surgeon, Agra.*

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*EXTRACT from a Demi-official letter from DR. PLAYFAIR,  
dated Agra, 26th August, 1861.*

IN writing a report on the cholera during the 19 days I treated it, I have omitted to give the comparative results in the two European Regiments at Agra. Their mortality was very heavy, and the comparison for several reasons is not a fair one.

1st.—During the progress of the epidemic, I believe a percentage of the deaths, *certainly* of the seizures, depends on mental depression, and European soldiers suffer more from this cause than natives.

2nd.—The usual stimulants given, unless with special reference to the capacity of an European soldier for spirits, have not the same effect on him as on a native.

3rd.—It is probable from the constant personal supervision of the prisoners, day and night (especially during the presence of cholera) by the burkundazes and the lumberdars of the different wards, that their symptoms were noticed at an earlier stage of the disease than was possible among soldiers in a barrack; and this is a most important cir-

cumstance towards lessening the mortality. As however the returns are interesting, I send them. You will notice that the epidemic was most severe in the 10th from 1st to 19th July, being then also most severe in the prison, when it began to ameliorate; the force of the attack appears among the 42nd Highlanders.

*Tenth Regiment (late 3rd Europeans), stationed at Agra; admissions, deaths, cured from Cholera, July and August, 1861.*

| DATE.                         | Admitted. | Died. | Cured. | Percentage Deaths. |
|-------------------------------|-----------|-------|--------|--------------------|
| 1st to 19th July, ...         | 19        | 15    | 4      | 78.94              |
| 20th July to 17th August, ... | 28        | 10    | 18     | 35.71              |
|                               | 47        | 25    | 22     |                    |

*Forty-Second Highlanders stationed at Agra; admissions, deaths, cured from Cholera, July and August, 1861.*

| DATE.                         | Admitted. | Died. | Cured. | Percentage Deaths. |
|-------------------------------|-----------|-------|--------|--------------------|
| 1st to 19th July, ...         | 12        | 5     | 7      | 41.66              |
| 20th July to 15th August, ... | 54        | 40    | 14     | 74.07              |
|                               | 66        | 45    | 21     |                    |

C. M. HENDERSON, 10th Regiment.

N. McMUNN, H. M.'s 42nd Highlanders.

**No. 13.**

**A BRIEF HISTORY OF THE APPEARANCE AND  
COURSE OF EPIDEMIC CHOLERA IN THE AGRA  
CENTRAL PRISON, DURING THE MONTH OF  
AUGUST, 1862.**

*By* DR. C. PLANK, *Officiating Superintendent Agra Central  
Prison.*

I MAY premise by stating the attack which made its appearance in this large Prison during the past month was short in duration, and the men attacked few in number, yet the type of the disease was of the most formidable kind. The number of deaths, as will be seen by reference to statistics at the termination of this paper, more than fifty per cent. of the seizures; and perhaps the sudden cessation of the disease and the fewness of the cases may fairly be set down, at least in some part, to the speedy measures taken to relieve the Jail of a share of its numerous inmates, thus allowing the remaining share to be spread amongst the buildings of the Prison in a most satisfactory manner.

During the month of August, 1862, the following were the atmospheric conditions observed in the immediate neighbourhood of the Prison:—The highest temperature of air,  $97^{\circ}$ ; the lowest,  $83^{\circ}$ ; mean for the whole month,  $88\frac{1}{2}^{\circ}$ . Wind—west, nine days; east, two days; south, seven days; north, five days. Calm—eight days. Rain-fall for month, 2.62 inches. Thunder and lightning on four days in the month. A zone observed slightly only on five days about the termination of the epidemic.

The diseases prevalent in the Prison during the month were:—Intermittent Fever, 168 cases; Remittent, 16 cases; and Continued, 18 cases; Dysentery, 34 cases; Diarrhœa, 30 cases; Cholera, 23 cases.

The first case of cholera occurred on the 9th. The attack was a very severe one, but the man recovered; the

last occurred on the 20th, and this man also recovered. Altogether 23 persons were attacked, 20 men and three boys, who were without exception strong and vigorous, and in several instances remarkably so.

The average age of the 20 men was 29·9 years, and of the boys, 14 years. Of the 23 persons attacked, 12 died, 10 men and two boys; the average age of the men who died was 30·1 years, and of the boys 13·5 years.

Of the whole number of cases (23), three occurred in camp on the Poyeca Ghât road, and the remaining twenty were distributed amongst the inmates of ten barracks situate in all parts of the Prison, which is good proof the attack could not have resulted from any neglect of cleanliness, deficient drainage, or want of ventilation of any particular part of the Jail.

The disease needs no description at my hands. It will be sufficient to say the well-known symptoms of purging, vomiting, changed voice, and collapse, presented themselves as of old, but that the common spasmodic actions of the muscles of the extremities were absent, with the exception of one case, in which also they were very slight; and the only value which can attach to the present Report arises from its description of the measures taken to prevent the course of the disease amongst the prisoners generally, and the impartial review it gives of the value to medical science generally of a form of treatment of the disease recently much advocated by a distinguished member of the service. I allude to the treatment by small bleedings and persevering administration of diffusible stimuli. The following were the means taken to stay the progress of the disease:—

On the morning of the 12th, four cases of cholera having occurred since the 9th, and one man having died, with Dr. Murray's approval, five hundred prisoners were moved into camp about two miles to the north of the Prison; the barracks and court-yards in which the cases had



occurred were entirely vacated, and greenwood was burnt in them continuously, so as to produce a large amount of pungent smoke. The prisoners were restricted to the use of certain necessaries, over each of which a watch was set, with orders to despatch to Hospital any prisoner whose bowels were loosely moved; each prisoner was allowed two chillies daily instead of one. Cholera pills were distributed to the Lumberdars of each ward with directions for administration; and, lastly, to each inmate of the Jail a pill containing one grain of Quinine was administered daily. On the morning of the 16th, thirteen men having been attacked, and eight having died since the 9th, a second camp of five hundred men was established on the Poyeea Ghât road, and fifty men recently convalescent from previous diseases despatched to Secundra to join the gang there, and the prisoners remaining inside were scattered to the utmost possible extent; wood-fires were kept burning all the day in every building; the dose of Quinine was continued daily, and all fatiguing labor was suspended.

From the 16th to 20th, in the Prison, eight cases occurred, and two men died; and no further case occurred after the latter date.

Of the two parties of 500 each despatched to camp, in the first, on the day after their removal, three cases of cholera occurred, two of which proved fatal. On the next day the camp was moved about half a mile further northward, and no other case occurred.

In the second camp no case at all occurred. The prisoners in both camps were returned into Jail on the 31st of August.

The Quinine was omitted from the 22nd, 1½lb. having been expended altogether.

Concerning the treatment of the disease, I propose confining myself to the description of the treatment pursued in ten cases, in all of which notes were taken during the

progress of the disease. All these ten cases were treated by small bleedings and the exhibition of diffusible stimuli, with a view to determine whether such practice would really re-establish the circulation as had been stated. Of these ten cases, a copy of the descriptive notes of which is appended, four died, and six recovered.

By a careful perusal of the notes it will be seen that only Nos. VI. and X. cases had reached an advanced stage of the disease and were recovered by this treatment; that of the other four cases who recovered, it cannot be said they had reached the stage of collapse or true cholera at all. However, it seems fair to suppose that, had this treatment not been pursued, it is possible some of these cases might have lapsed into collapse. Altogether, from what I observed on this occasion, the impression remains that this form of treatment will not be found more successful than other forms, and certainly not so successful as has been anticipated by some. Yet the happy termination of cases Nos. VI. and X. has induced the determination to make further efforts in this direction if future occasion should offer. The appearance of the blood as observed in these cholera patients is worthy of record as a help to diagnosis. The blood taken from a patient in or very near the collapsed stage coagulated with remarkable rapidity, forming a solid glaze in about quarter of an hour, adhering to the bottom and sides of the metal dish with such firmness as to allow of its being turned over, and over without a drop of blood falling out, not a drop of serum being present. This was the appearance of the blood in all the fatal cases, and in Nos. VI. and X. cases. In the other five successful cases, serum separated from the clot in varying quantities, from a few drops floating in the centre of the crassamentum to sufficient to nearly float the crassamentum itself, as in ordinary blood.

Of the remaining 13 cases, eight died; the treatment adopted in these cases was stimulants with friction and

warmth to the limbs; in two cases the Acetate of Lead in solution with Acetic Acid was given successfully; but it is necessary to state these cases include all those with which the epidemic commenced, and which, as usual, were of the formidable type of rapid collapse. Concerning the period of the commencement of the disease in individual cases, it may be mentioned that in the majority of instances the attack commenced at or near daybreak.

The *post-mortem* appearances observed were those ordinarily seen in the bodies of persons dead of cholera, and may be summed up thus:—

Brain congested.

Organs of chest natural.

Liver natural, but gall-bladder distended with bile; Kidneys, in all instances, congested; in one, purple with congestion.

Bladder empty and contracted.

Intestines of a peculiar greasy feel externally, and filled in some instances with pinkish white fluid, in others with fluid tinged with bile. Peyer's patches enlarged, and elevated in one instance. Blood (dark, chocolate-coloured and fluid) from one to two ounces running from vein in arm when divided. All the bodies feeling cold externally like other bodies a few hours after death.

C. PLANK,

*Officiating Superintendent,*

*Agra Central Prison.*

*Notes of cases of Cholera treated by small bleedings and diffusible stimuli in the Agra Central Prison, during the month of August, 1862.*

No. I.—Paiman, Kolee, aged 20, a strong, intelligent young man, taken ill at 5 A. M. on the 13th August. Had three stools during the morning: says they were like water without fecal matter; was then sick twice, and brought to Hospital at 12 noon; was nearly pulseless and collapsed.

*Treatment.*—Median Cephalic vein of left arm opened; rather thick, dark chocolate blood flowed out in a good stream until about two ounces had come, when the blood began to drop, and all efforts of rubbing the arm upwards, &c., failed to make more blood flow, so the wound was closed up; blood coagulated quickly without serum. To have Chloroform 20 drops, and Spirits of Wine 40 drops, every quarter of an hour.

August 14th, 7 A. M. Pulse almost indistinguishable; continued taking the Chloroform with Compound Tincture of Cardamoms instead of Spirits every quarter of an hour since (12) noon of yesterday, and drinking water *ad libitum*. Hot bricks were put to abdomen and legs and feet at intervals during past 12 hours; continued to vomit all day and during the night after drinking water. No motion this morning; no urine.

Condition at 5 P. M. Is sick after drinking water; pulse just perceptible at wrist; eyes sunken; is restless and moans; skin a little warm.

15th August, condition at 7 A. M. Perfectly collapsed and dying, received the Chloroform and Tincture of Cardamoms all night.

5 P. M. Collapsed; tongue brown, no urino, is drowsy, eyes closed; talks when roused pretty collectedly. Has had turpentine and mustard poultices on his loins since morning. To continue stimulants. Died at 4 A. M. of 16th.

No. II.—Soobhan, Jolaha, 35 years of age. August 13th, 9 A. M. Has had about fifteen stools of rice-water appearance this morning, and been sick six times. Is collapsed. Vein opened in left arm; two ounces of blood flowed out slowly. After which no more could be got, and no stream could be established; then the Chloroform and Tincture of Cardamoms to be given every quarter of an hour.

Condition at 5 P. M. Is pulseless, and collapsed, breathes rapidly with laboured inspiration; eyes sunken. Died at 6 P. M.

No. III.—Esnrah, Kahar, aged 15, a strong boy. August 15th, 7 A. M. Taken ill last night at 3 A. M., when he was brought to Hospital. Has vomited twice, and been purged three times. During the night and morning had two cholera pills and one dose of Chloroform and Cardamoms.

Condition at 7 A. M., 15th August. Skin cold, pulse small (about 90) voice changed, eyes sunken, roused with difficulty. Bled to two ounces; on first opening vein, which was done very carefully, one ounce of blood flowed out slowly. Afterwards, with continued friction and manipulations of arm, blood continued to drop away, but no stream could be established; while vein was open gave Chloroform and Tincture of Cardamoms.

6 P. M., Is prostrate, with closed eyes: swallows water with difficulty, but complains of thirst; pulse a thread. Got stimulants all day every half an hour.

August 16th, 6 A. M. Pulseless; collapsed. Got Sulphuric Ether half drachm every hour during the night, and a dose of Colocynth and Calomel once. Is very drowsy. To have Emplast Lyttæ to neck; Sherbet of Pottassæ Bitart. frequently. Stipes of turpentine to be applied to loins.

Six P. M. Pulseless; cold; groans continuously; complains of pain of blister on neck and also pain where vein was opened (wound gaping); no urine; wound closed with wet linct. To take Ammonia and Wine every hour. Has pain in bowels on pressure; has had about ten scanty motions to-day, last motion pinkish white fluid.

August 17th, 6 A. M. Groans very frequently; is cold, pulseless, and restless; no urine; talks pretty collectedly; pulse just perceptible; tongue moist; respiration hurried. Has been taking Sulphuric Ether half drachm every hour during day; to continue it. Died at 6 P. M., 17th August.

No. IV.—Soondur, Brahmin, aged 16, a well-conditioned boy. August 15th. Was admitted to Hospital with fever yesterday, was attacked with Diarrhœa at 9 A. M. to-day. Was purged twice, then received a cholera pill and 20 drops of Chloroform. Has vomited twice during the day, but not been purged since the morning; voice changed.

Condition at 5 P. M., 15th August. Pulse small (about 100), tongue rather white, eyes somewhat sunken, body warm. To get Acetic Acid and Acetate of Lead mixture every hour.

Condition at 6 P. M. Voice a little changed, eyes a little sunken, is restless; bled to three ounces; blood formed serum and clot. After the bleeding pulse (90) small but soft. To get Sulphuric Ether every hour, and milk diet; omit Lead mixture.

16th August, 6 A. M. Pulse rather hard (about 90), of good strength; skin warm, voice natural. Omit stimulant; give Quinine, two grains, three times a day, and sago and milk as food. August 17th, 9 A. M. Convalescent.

No. V.—Bhoorah, Mahwateo, aged 30. Fair condition; was a convalescent in Hospital from fever. Was purged at 5 A. M. for the first time to-day, the 15th August, had six motions in a day. Got no medicine, not being reported sick till 2 P. M., when he got a cholera pill. Has been sick once, at 3 P. M.

Condition at 5 P. M., 15th August. Pulse very rapid and small; voice changed; eyes somewhat sunken; no pain. A vein was opened in the arm, and after patient rubbing for twenty minutes blood flowed out in a stream, but never very readily. Before bleeding the pulse was as small as thread, after bleeding pulse could not be felt. Altogether six ounces of blood were taken, and during the bleeding thirty drops of Spirits Compound Sulphuric Ether were given three times. To get Chloroform and Ether every half an hour.

Condition at 6 A. M., 16th August. Hurried respiration, pulseless, cold. Purged twice in night; motions perfectly choleric, not a particle of billons

or fuculent matter in them. Got Ether every hour during the night and Sherbet of Bitartrate of Potash. Continue stimulant.

Condition at 6 p. m., 16th August. Pulse very small but perceptible—rapid. Says he feels better; has eaten sago to-day. Since 12 o'clock has been taking Ammonia and Rum every hour. Had five motions to-day; no vomiting; no urine; last motion bilious fluid. Continue Ammonia, and apply turpentine stupes to loins.

17th August, 7 a. m. No urine; pulse scarcely perceptible; restless; groans. Had six or seven motions in the night; last motion bilious choleric fluid. Continue stupes to loins and Ammonia.

Condition at 5 p. m. Pulse small (90); voice still changed. Had five stools to-day—fluid, tinged with bile; passed a few drops of urine. Turpentine stupes applied all day to loins. Has taken mixture of Bitartrate of Potash all day. To take twenty grains of Gregory's Powder and continue Turpentine stupes and Potash mixture. Sago diet.

18th August, 8 a. m. No urine; skin cold; pulse faint; strength about 100. Drowsy; voice still changed. Had eight fluid motions in night—choleric, and containing bile. No pain; belly gives out much gurgling when manipulated. No bladder perceptible. To get ten drops of Turpentine and Mucilage every quarter of an hour, and warm fomentations to loins.

Six p. m. Pulse very small (90), surface cold. Had twenty stools in the day—fluid, loaded with bile; no urine. Continue fomentations and Turpentine; no pain, no vomiting.

19th August, 8 a. m. Pulseless; surface cold; restless; falling into typhoid condition; no urine; five bilious stools in night. Died at 11 a. m.

No. VI.—Chundun-Singh, Brahmin, aged 27, fair condition. Was purged for the first time at 3 p. m. of the 15th August; was again purged at half-past 5 a. m. of the 15th, and again at 6 a. m., then came to Hospital. Says the motions in the morning were yellowish fluid, but not like water. On admission to Hospital got a cholera pill, and ordered to lie perfectly quiet. Took three pills during the morning.

Condition at 1 p. m., 16th August. Since 12 noon has had two motions—choleric in appearance, perfect rice-water, and has been sick once; complains of heat; voice altered; eyes very little sunken; pulse very small (about 100); tongue whitish. At 1 p. m. was bled to four ounces; the blood, after manipulation of the arm, flowed in a stream. To get Spirits, Ether Sulphuric one-half drachm every hour, and water *ad libitum*. Asks for ginger and mint. Is to have it, and sago and milk.

Six p. m. Pulseless, cold, fingers shrunken, rather restless, sighs. To continue Ether. Has been sick three times and purged three times since 1 p. m. Cholera stools; no urine; voice changed.

17th August, 9 a. m. Had three motions and vomited seven times in the night—last motion quite choleric; no urine. Pulse very small about (100);

complains of heat in belly. Mustard plaster to abdomen. Spirits Ether Nitre Mixture every hour.

Five p. m. Pulse small (about 90); voice still changed. Had one stool to-day—perfect rice-water; passed a few drops of urine. To take Gregory's Powder twenty grains, and sago and milk.

18th August, 8 A. M. Much gurgling in belly, surface cold; pulse very small (about 90). No motions in the night. Has been sick four times; has passed a little urine. To get Turpentine Mixture every hour.

Six p. m. Has passed a good quantity of urine to-day, and had two bilious motions. To get two grains of Quinine every four hours.

August 19th, is convalescent. Eventually made a good recovery.

No. VII.—Paiman, Garareea, aged 30, good condition. August 17th, was a patient in Hospital, where he has been since 12th August with fever. Last night at 10 o'clock was purged; was purged altogether four times, and vomited twice in the night. Got three cholera pills during the night.

Condition at 5 A. M., August 17th. Has been ill nine hours. Is collapsed and dying. Last motion perfectly choleric.

Vein opened at 5 A. M., and about two ounces of blood got out with great difficulty. The blood was peculiar in the hardness of the clot, which would not fall from the pan when it was turned over and over; there was no serum. To get Ether Sulphuric one drachm every quarter of an hour. Died at 8 A. M.

No. VIII.—Datel, Brahmin, aged 35. August 17th, was first purged at 11 A. M. to-day. Had three motions, then came to Hospital at half-past 1 p. m., soon as he was purged got two cholera pills.

Condition on admission to Hospital. Feels very weak and cannot stand up. Pulse rapid, but of fair strength. Has had three motions during last half hour; motions fluid but bilious; passes urine. Was bled to three ounces; clot separated well from serum, which last was in fair quantity. To get Spirits Ether Sulphuric one drachm every hour.

Condition at half-past 4 p. m. Pulse (80) soft and natural, body warm; has never vomited. Vessels of head full of blood; head hot. Complains of gripings and heat in his belly; has pain in his head. Omit stimulant. Give Gregory's Powder grains twenty. August 18th, 8 A. M. Convalescent.

No. IX.—Gunga, Jât, aged 30, good condition. Was a patient in Hospital since 11th August with Diarrhœa, and was seized with cholera on the evening of 17th August.

Condition at 6 p. m. August 17th. Has vomited twice, and been purged several times; motions choleric. Pulse rapid and small; voice a little changed; surface of body cool. To be bled to three ounces. Blood was obtained with much difficulty and after considerable manipulation of arm; blood when cold had some serum mixed with it. Whilst being bled took

two doses of Spirits Ether Sulphuric in water. To take one drachm of Sulphuric Ether every hour.

Condition at 7 p. m., 18th August. Voice weak; eyes a little sunken; pulse (85) of fair strength. Three stools passed in night—choleric mixture with bilious matter; was sick once in night; vomit frothy-looking water; tongues clean, whitish; body warm. Has made water this morning. To get Quinine two grains every two hours.

August 18th, 6 p. m., Convalescent.

No. X.—Sreekishon, Brahmin, aged 20, a strong young man. Was in Hospital with Diarrhœa since 16th August, when attacked with Cholera at 5 a. m. on the 18th August.

Condition at 5 a. m., 18th August. Has had one cholera stool—perfect rice-water; is pulseless; voice changed; has cramps in legs. Vein opened at half past five, and with great difficulty about two ounces of blood got drop by drop; stream never established. Clot adherent to vessel; hard solid, no serum.

Condition at half-past 7 a. m. Says he feels alarmed, and as if he should be sick; complains of heat in his body. Pulse just perceptible (about 100); body very cool; voice of fair strength. Has had one drachm of Sulphuric Ether three times in past two hours. Had one stool at 7 a. m.—perfect rice-water; has pain in his head. Apply cold to head, and continue Ether.

Condition at 6 p. m. Is restless, cramps in legs, pulse very small (100); has been sick and purged every hour during the day—motions bilious, no urine. Omit Ether and give Carbonate of Magnesia five grains in water every hour. Has eaten a little rice and milk to-day.

19th August, 7 a. m. Pulse (90) fair strength; has pain over region of liver. Had two stools in the night, but no vomiting; body warm, voice pretty natural; made water three times in the night; motions bilious. To get Quinine two grains every four hours.

Half-past 5 p. m. Pulse natural, voice natural, body warm. Had seven highly bilious motions to-day; no sickness. Passed a fair quantity of urine to-day. Continue Quinine.

August 20th, 7 a. m. Convalescent. Continue Quinine.

C. PLANK, M. D.,

*Offg. Superintendent, Agra Central Prison.*



**No. 14.****REPORTS ON THE "TYPHOID CONTINUED FEVER," WHICH LATELY ATTACKED THE INHABITANTS OF MOUZAH CHATUNGA KHOORD, PERGUNNAH JEWUR, ZILLAH BOOLUNDSHUHUR.**

*By W. H. LOWE, Esq., Magistrate, and DR. D. HOOD, Civil Assistant-Surgeon, Boolundshuhur.*

I HAVE the honor, through the Commissioner of my Division, to submit for the information of Government the accompanying report, drawn up by Dr. Hood, Civil Assistant-Surgeon, on the "Typhoid Continued Fever," which lately so severely attacked the inhabitants of mouzah Chatunga Khoord, pergunnah Jewur.

2. The tehseeldar did not report the existence of this epidemic till the beginning of last month, although it had been raging in Chatunga for a month or two past. I at once deputed Dr. Hood to visit the spot, make the necessary enquiries, supply medicines, &c., and eventually to favor me with a report on the nature of the disease, its origin, duration, severity, &c.

3 The result of his enquiries Dr. Hood has embodied in the report which I now have the pleasure to submit for your perusal.

4. I may here observe that, in the beginning of last month, this same disease attacked the village of Bhoonna, situated in the eastern boundary of the Jewur pergunnah; that it was severe while it lasted, but had entirely disappeared by the end of the month. When passing through the village at the time the fever was at its height, I directed the inhabitants to leave the village for a few days, and also to light large fires throughout the village, in order to the purification of the air.

5. The fever appears to have been introduced into Bhoonna by a young man of that village, who went to a village in pergunnah Tuppul, zillah Allygurh to fetch his bride.

6. The fever did not extend to the villages surrounding Bhoonna, nor to the town of Jehangeerpore, which adjoins its area to the north.

7. Dr. Hood promptly supplied the medicines required, but before they could reach Bhoonna, the fever had left the village.

8. The tchseeldar has now reported the prevalence of this fatal disease in mouzahs Sehudah, Furreedpoor, and Nyamutabad, on the Ganges Canal, in the Khoorjah pergunnah.

9. The circumstance has been communicated to Dr. Hood.

10. The above are the only villages which this fever has attacked as yet. Should it evince a tendency to spread over the district, I will not fail to give you early intimation of the same.

BOOLUNDSHUHUR : }  
The 22nd Feby., 1862.

W. H. LOWE,  
Magistrate.

From DR. D. HOOD, Civil Assistant-Surgeon, to W. H. LOWE, Esq., Magistrate and Collector of Boolundshuhur.—Dated Boolundshuhur, the 13th February, 1862.

I HAVE the honor to make the following report on the epidemic disease, which was reported as having been fatal to many individuals in the village of Chatunga Khoord, near Jewur, in pergunnah Jewur.

2. I visited the village at your request on the 11th ultimo. There were then ten sick, and their cases and circumstances were as follows :—

I,—House of Dabee Singh, brahmin, lumberdar ; people well to do ; house very clean, commodious.

1st,—His son, age 30, a strong man, has considerable fever ; skin pungently hot ; tongue dry and blackish in middle and base, with red edges, much thirst ; no appetite ; coughs much, no sputum ; does not complain of pain

but appears to have tenderness on pressure over liver; bowels open daily; eight days ill; was attacked during the day with "shivering fever;" has had no diarrhoea or dysentery. Has occasional shiverings but these have no periodicity; they seem to depend on accidental circumstances, as current of cold air, &c.

2nd.—His daughter, age 20, appears to have been moderately strong; fifteen days ill; is now convalescent; no pain; tongue pale; bowels regular; is very weak and emaciated. She states that she was attacked during the day time with "hot fever," she afterwards had vomiting. The fever left her on the seventh day.

3rd.—Another daughter of Dabee Singh, age 21; strong; has pain when pressed in region of liver: skin hot and dry; much thirst; tongue fevered, but not black or dry; bowels open daily. Has been eight days ill; was attacked with hot fever.

II.—House of a relation, Sreekishen, goojur; house close and confined, but clean.

4th.—Child, age 3; skin hot and dry; has bronchitic cough. Said to have shivering and vomiting. State of tongue could not be ascertained; one day ill.

III.—House of Hurnam, goojur, house clean.

5th.—Hurnam, age 40, appears to have been a moderately strong man; tongue red and dry; has no appetite; no pain; is lean and weak; has no fever. Three weeks ill; was attacked with hot fever; had dysentery.

6th.—Hurree Ram, age 25, three weeks ill (one day later than Hurnam). Is now convalescent; is not much reduced. States that he was attacked with hot fever and vomiting; had dysentery; fever left on fifth day.

IV.—House of Jangheer, goojur, house clean.

7th.—Jangheer, age 40, twenty days ill. Is now convalescent; very weak, and wasted; tongue blackish in the middle, but not dry or cracked. Was attacked with hot fever; has had no diarrhoea or dysentery.

8th.—Ajee Ram, age 15, sixteen days ill. Has shivering fits, which commence at night; and leave him when the sun is up. Tongue foul and white; he is emaciated and weak; states that he was attacked with shivering fever; had diarrhœa for six days.

9th.—Sahib Kounr (female), age 30, twenty days ill. Is now convalescent; has no fever; tongue dry; clean, but glazed; she is not much reduced, but is weak. States that she was attacked with shivering fever; had no diarrhœa.

V.—House of Ramjuss, goojur; house clean.

10th.—Ramjuss, goojur, age 35, forty days ill. Is now convalescent, but emaciated and very weak; complains much of the cold; tongue clean; eyes are slightly jaundiced. States that he was attacked with shivering fever; has had no diarrhœa.

3. The symptoms I have noted in the cases above, with the history of the cases, identify this epidemic with the epidemic fever which has recently been prevalent in several Jails and other places in the North-Western Provinces. Dr. Walker, Superintendent of the Agra Central Prison, names the disease "Typhoid Continued Fever."

4. *Description of the locality.*—Chatunga is situated in the Jumna Khadir, about  $1\frac{1}{2}$  miles from Jewur, and  $2\frac{1}{2}$  miles from the river; it is therefore nearly in the middle line of the Khadir. The surrounding country, for upwards of a mile on every side, is flat Khadir land, bearing no appearance of jheels or other damp ground. A small dry nullah passes "little Chatunga" and Raipore. There are few trees or "baghs," and there is no jungle of "jhor" grass, &c. The soil seems to be superficially much the same throughout this circle. In some places, "reh" crops out more abundantly than in others, varying in patches from a few feet to many yards in extent; but nearly the whole of the surface seems to be capable of producing crops or fair pasture. Rubbee crops are not extensive,

owing to the scarcity of water, which is drawn from pukka wells, both for irrigation and domestic use. Each village seems to possess one or two wells only in its vicinity, and at the time of my visit, these were being daily exhausted, or nearly so. There are no kutchha wells. The water in most of the wells, is considered sweet, but in some it is bitter. The "sweet" water alone is used for domestic purposes; water is about eight cubits distant from the surface. A great breadth of joar and bajra has been grown during the last rainy season; of this the stubble and much of the cut straw still remains on the ground.

5. The villages in the vicinity of Chatunga Khoord are Bngwantpore to the north; Ghurburra to the south-west; Hamidpore to the south-east; Muhaidpore to the east; Chatunga Buzoorg to the north-east.

6. I.—Chatunga, a village of 250 inhabitants. These are goojurs, brahmins, and chumars. The latter form a small proportion: they live towards the north-east of the village. All seem well to do.

The situation of the village is elevated about 5 or 8 feet above the surrounding level; the ground is dry; few neem trees are scattered throughout the village; there are no gardens, tanks, pools, or collections of filth in or near the village. In comparison with neighbouring villages, the houses here are larger and more commodious, and are built at considerable intervals; in no place are the houses crowded together. The interiors are partly occupied by cattle, horses, &c., but these are usually separate from the people. The cattle sheds, yards, &c., are not more than ordinarily filthy, while the dwelling-houses are exceedingly clean, the walls and floors being well "leap'd." Household utensils clean, grain kothees dry and well secured. The ordinary food of the people, since the rainy season, has been mukka, joar, bajra, oord, moong, and moth. They commenced to consume these grains in October (Kartik), the month in which the epidemic made its appearance. I

examined specimens of each grain; all were excellent, with the exception of the joar. A large proportion of that grain is affected with "smut," or blight. This bad grain is usually eaten along with the good grain; but in the houses of the richer, the "smut" is separated occasionally; this is accomplished by throwing the grain into water, on which the "smut" floats. There are no vegetables: gram is used in this village: the soil is said to be unfavorable to their growth. Potable water is drawn from one well alone: this is situated about 150 yards clear of the village to the north-west; it is an old pukka well, and is used also for irrigating the khets; the water is eight cubits from the surface; there is a depth of water of six cubits, which is nearly exhausted daily at this season; the water is sweet and good, and it is considered good water by the villagers there and in the neighbourhood. They consider that the water has at all seasons been good. There is only one other well near the village; it is about 100 yards from the former. It also is pukka, but the water is considered bitter, and is not used at all for domestic purposes. I tasted the water of this well. It was not perceptibly saline, but had a disagreeable mawkish taste. No water remains stagnant near Chatunga during the rains.

I particularly examined the houses in which most deaths have occurred. In the house of the late Sreekishen most deaths occurred. He was a lumberdar, and the wealthiest man in the village. His house extends along the entire western side of the village, having extensive cattle enclosures attached. The situation is open, dry, and moderately elevated; a few fine old neem trees overhang the gateway within an outer court-yard, in which cattle are kept, and an inner, surrounding which are the houses of the family; all are particularly clean. The epidemic commenced in this house.

In the house of Dabee Sing there were many deaths. This house is within the village, and is less commodious

than that of Sreekishen, but still much more so than most native houses of the class.

Of the chumars, about twenty were attacked with the fever, all in October. None died; five or six are still somewhat weak, but are able to work, &c. The chumar portion of the village is to the north-east, not by any means so clean as the other, and is somewhat lower in situation.

The food of all classes is, and has been, identical. I had specimens of the grain from every house. The chumars state that they have had no animal food lately.

The disease attacked age and sex indiscriminately. There have been 51 deaths since the beginning of October, viz., 25 men, 14 women, 12 children.

In the putwaree's register the assigned causes of death are as follows:—

|                                                                |     |     |     |    |
|----------------------------------------------------------------|-----|-----|-----|----|
| Fever with pain of head, or diarrhoea, dysentery, or vomiting, | ... | ... | ... | 20 |
| Fever,                                                         | ... | ... | ... | 29 |
| Hunger,                                                        | ... | ... | ... | 1  |
| Small-pox,                                                     | ... | ... | ... | 1  |
| TOTAL,                                                         |     |     |     | 51 |

Of these 38 were goojurs.

I could not discover that there had been any marriage feast, or other cause of assemblage of people from other villages, about the time of the outbreak of the epidemic. No one suspects that the disease was brought by any one to this village, nor can any one suggest a cause for it. All consider that it happened "of itself." This fever has not been seen before by any of the residents; it does not exist in any of the neighbouring villages. There has been no extraordinary mortality in Chatunga of late years. There were four or five deaths from cholera last year. Small-pox has not been severe.

II.—Bhugwuntpore, about three-quarters of a mile to the north of Chatunga, contains about 250 inhabitants. The village is divided into two portions by a deep and filthy excavation, in which there is a little water. The grain food is identical with that at Chatunga, but vegetables are grown. Water is drawn from a pukka well close to the village; the water is considered sweet and good, and of the same quality as that at Chatunga. The soil is of the same nature.

III.—Ghurbara, a large village, about a mile to south-west of Chatunga. The inhabitants are principally jâts and brahmîns; the remainder are dheemurs, chumars, and mullahs—the latter engaged in agriculture. This village is crowded and filthy. The people seem poor. Vegetables grow, and are plenty. The grain is the same as at Chatunga. Water same. Soil nearly the same. There has been no unusual sickness here.

IV.—Hamidpore, about the same size as Chatunga, is situated one mile to south-east. Inhabitants, goojurs and chumars. There is a dirty pool close to the village. The people seem to be poor. Houses crowded and dirty. Well pukka. Water sweet. Soil not identical with that at Chatunga, but appears to be more clayey; it cracks on drying, and therefore will not bear vegetables. No vegetables are used. Grain same as that at Chatunga. There has been no unusual sickness here.

V.—Mahidpore, a new village of 140 inhabitants, three-quarters of a mile to east of Chatunga. There have been no deaths here lately.

VI.—Chatunga Buzoorg, distant half a mile from Chatunga Khoord, to the north-east, contains 100 inhabitants, of whom 20 are goojurs, the remainder dheemurs. The situation, houses, &c., are much the same as at the other village. The well is at the distance of 200 yards. The water is bitter, but not strongly so. Six goojurs died here in October, two men and four women; and apparently



of the same disease as that which was prevalent at Chatunga. There are no sick now. The food is identical with that used at Chatunga.

It is now impossible to ascertain what were the conditions of the atmosphere during the month of October. The residents do not consider that there were any circumstances peculiar to their village; had there been accumulations of water or mud the signs of these would still exist.

October is a month very noxious to natives. Bhootas and other indigestible substances are common articles of diet; and the custom, during the chilly nights, after the evening meal being to wrap the head as well as the body in a thick razaie, a loaded and vitiated atmosphere is breathed for some seven or eight hours. This, I believe, to be a cause of the "common continued fever," which is prevalent at this season, and this would act as a predisposing cause to the peculiar fever which visited Chatunga.

The mortality was chiefly among the goojurs. Thirty-eight of the 51 deaths in Chatunga were of goojurs, and all the deaths in little Chatunga were of goojurs. This is remarkable. I could not discover any peculiarity of domestic habits among them to account for the excess of mortality. I believe that they are large feeders.

You are acquainted with the morals of the people of Chatunga, and the estimation in which they are held by the District Police. In their forays they probably suffer from causes of depression of vital powers, such as insufficient or unsuitable food, exposure, watching, fatigue, &c. These also would predispose to a disease such as described; but is it probable that these influences would affect the women and children too? However this may be, it seems that the poison locally attained to a certain degree of infective power, and it is probable that the residents of Chatunga Buzoorg were the men attacked, and received the disease by close communication with the affected of Chatunga Khoord. Otherwise it is difficult to

account for the total escape of the eighty dheemurs of the former.

The origin of the epidemic cannot be ascribed to the constant use of any one kind of food for two reasons : *first*, that the period of the outbreak of the epidemic was also the period of change in the grains used for food (the rain crop had just come in) ; *second*, that this cause would have operated equally on most of the Khadir villages.

Nor can the subsequent cases be ascribed to the food of the people of Chatunga, however much one of the grains principally used, the joar, was unfitted for food or noxious by reason of the blight, for the people of the Khadir generally ate grain of exactly the same condition and kind.

It is my impression that this disease, which has been epidemic in the village of Chatunga, has for cause a certain miasma, nature unknown, local in its origin and action, incapable of being conveyed in effective quantity or quality to a distance, and which probably became infectious, but not virulently so.

I therefore consider that, in the event of an outbreak of a local epidemic of this nature, there is no measure better calculated to check the extension of the disease than simple evacuation of the locality, as recommended by you in the case of the village Bhoonna last month.

In conclusion, I beg to represent that, in the case of Chatunga, great mortality occurred in October ; but that this was not reported until January, when the period for remedy had gone by : the disease was dying out, the existing cases modified, and not affording correct examples of the type of the disease, the investigation of the causes obscured or useless.

D. HOOD,

*Civil Assistant Surgeon.*

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NOTE.—The report that a similar disease had last year been epidemic in two villages on the opposite bank of the Jumna has proved unfounded. It was ascertained by the police that no extraordinary mortality or disease had visited those villages for years.

**No. XV.**

*From S. CLARK, ESQ., Inspector-General of Prisons, North-Western Provinces, to the Secretary to Government, North-Western Provinces, Allahabad (No. 129).—Dated Camp Nynce Tal, the 5th September, 1860.*

SIR,—With reference to the 6th paragraph of your letter, No. 912, dated 23rd April, 1860, Judicial Department, conveying His Honor the Lieutenant-Governor's request that Dr. Walker, Superintendent Central Prison, Agra, might be instructed to give his best attention to the investigation of the possible causes of the destructive epidemic then prevailing in the Agra Prison, and eventually to submit a special report on the subject, with full details as to the nature of the disease, the remedial measures taken, the number attacked, the proportion of deaths, and any other information which a professional or administrative view might suggest as useful, I have now the honor to submit Dr. Walker's Report, along with others noted in the margin on the same subject, for His Honor's information.

Enclosures, Nos. 1 to C.  
Dr. W. Walker, Superintendent, Agra Prison.

Dr. J. C. Corbyn, ditto,  
Meerut ditto.

Dr. J. C. Bow, ditto, Allahabad ditto.

Dr. J. Naismith, ditto Benares ditto.

Dr. Garden, C. S., Ghazepore.

2nd.—I quite agree with Doctor Walker in his opinion relating to the contagious nature of the disease, and believe it to be, under certain circumstances, as much so as Typhus Fever in Europe. It is very difficult to test the real progress of disease amongst the free population of this country; but I have long considered the low continued fever so prevalent in the native towns and villages more or less infectious according to the state of the atmosphere, and have no doubt whatever that the disease now under consideration was precisely of the same type as the fever which swept over the Allypore district in 1856-57, completely desolating some villages, and which I stated at the

time was, in my opinion, due more to infection than the immediate effect of malaria from the flooding of a certain part of the country by water from the Ganges Canal, the conclusion arrived at by some. However, whatever may have been the primary cause in either instance, it does not follow that the disease on both occasions was not infectious; for it is a generally admitted fact that diseases which do not propagate themselves, and are not under ordinary circumstances infectious, may become so under certain conditions. Doctor Copland, an eminent English physician, and one of the first authorities on practical medicine of the day, says, in speaking of diseases which are caused by miasma or exhalations from the ground: "If however, other causes are superadded—if the persons labouring under disease from this source be confined in ill-ventilated apartments, or breathe a close air loaded with animal exhalations—the disease may change its form and assume one of those which arise from the second class of causes, that is, from animal effluvia, and thus become, consecutively and conditionally, infectious." That the infectious nature of the fever in question is no new feature in similar diseases many arguments might be adduced: amongst others, I may mention one of rather an old date. In 1836-37, an epidemic of apparently the same type as the fever under consideration swept over Rohileund, and the mortality is said to have been "something awful." The prisoners in the Bareilly Jail suffered severely; the Civil Surgeon, Native Doctors, and every one employed in the Hospital caught the disease, according to the account given me, from coming in contact with the affected; the burkundazes of the guard, and in fact every one connected with the Jail shared the same fate: which goes a long way to show that the disease must have been infectious, and so far at least bears some resemblance to the late epidemic.

3rd.—Although Dr. Corbyn does not offer any remarks on the contagious nature of the fever as it appeared at

Meerut, there can be no doubt about it having been precisely the same disease as that which prevailed at Agra. During a stay of some time at Meerut, when the disease was at its height, I had an opportunity of judging from personal observation, and the symptoms and *post-mortem* appearances were exactly the same as described by Doctor Walker.

4th.—Again, according to Doctor Bow's report, the fever that attacked the prisoners at Allahabad appears to have been the same as prevailed at Agra and Meerut, and with every deference to the opinions expressed to the contrary, I cannot help observing that the fact of 40 attendants on the sick having been attacked and 17 prisoners who were in Hospital for other complaints having died of it, as stated by Doctor Bow, goes a very long way in favor of the disease as it appeared at that place having been infectious; and, all points considered, I think it very probable that the mortality amongst the transported convicts despatched to Alipore in the month of January last was chiefly from the same disease, contracted before they left Allahabad.

5th.—A fever that prevailed amongst the prisoners at Benares never assumed any very serious form; but it appears from Doctor Naismith's Report that the free population throughout the province of Benares suffered severely during the months of October, November, and December from a fever bearing many of the characteristics of the disease under consideration.

6th.—In the Ghazee-pore district a fever prevailed of apparently the same type and at the same time of the year as at Benares; and, although the prisoners suffered a good deal, according to the following extract from the Civil Surgeon's Annual Report it would appear the disease was much less severe within the Jail than amongst the surrounding free population. Doctor Garden says: "To have re-

" moved the prisoners from within the walls of the Jail to " Camp in the open country, where the fearful scourge " was raging with tenfold power, would have been without " avail;" and from the annexed special report it would appear the prisoners must have experienced a wonderful immunity from the epidemic. In fact, with the exception of Agra and Meerut, the prisoners in all parts of the country appear to have been much more healthy than the free population, and, if it could be properly ascertained, I am inclined to think the ratio of mortality in even the Agra and Meerut Prisons would be found under what it was in many of the villages in the surrounding districts; and the accompanying chain of Reports, extending from one end of the North-Western Provinces to the other, speaks of great sickness amongst the free population, and wherever I went during my late tour of inspection I heard constant complaints of the sickly state of the season.

7th.—Viewing the question from all points, I do not consider it by any means proved that the rate of sickness and mortality amongst the convicts has been greater than amongst the free population in certain places; and when I recollect of having seen whole villages so completely desolated by what, I believe, the same type of fever as in the Allygurh district, that there were not sufficient survivors left to dispose of the dead, I cannot see that we have yet sufficient data before us to prove that the convict's constitution is not quite as able to withstand the shock of severe attacks of disease as the free man's.

8th.—No one will dispute for a moment the absolute necessity of change of food to a cer-

|              |             |
|--------------|-------------|
| * Wheat.     | Gram.       |
| Barley.      | Dal.        |
| Jowar.       | Vegetables. |
| Bajra.       | Oil.        |
| Indian Corn. | Salt.       |

tain extent in maintaining the body in a state of perfect health. On reference to the annexed list of articles\* comprising the present prison dietary of these provinces, it will be seen that, with care, a very fair change can be secured. At first sight this may appear

nominal in a great measure, but there is a considerable variety in the composition of the several articles, and it has been found from direct experiment that, by judicious alternation of atta prepared from the above cereals, the prisoners actually increased in weight.

9th.—Again, a good jail garden properly arranged and cultivated will supply sufficient vegetables throughout the year; and with all the vegetables of the season at one's command, in addition to the other articles already mentioned, I consider the prisoner, under careful and able management of the present Superintendents of Central Prisons, may, and I believe really has, as great a change of food as the free man, with the exception of inferior kinds of fruit, often in an unripe and otherwise unsound state, which it may very fairly be presumed are not always conducive to good health.

10th.—I have always considered the present dietary somewhat deficient in vegetables, a point that is receiving my best attention; and as the necessary increase can be supplied without additional expense to Government, with the exception of a small allowance of oil for cooking, with any extra quantity that may be added to the present scale, I trust His Honor the Lieutenant-Governor will have no objection to the measure.

11th.—I fully concur with Doctor Walker in what he states regarding the evils of crowding large numbers of human beings together, particularly at night; but having entered fully into this subject in my Annual Report, dated 30th May, 1860, No. 85, and letter No. 127, dated 3rd September, 1860, I need not again adduce the same arguments here.

12th.—The change of air proposed by Doctor Walker would no doubt be beneficial to a certain extent, but the period is too short to be of much use in bracing up the constitution to withstand the shock of any severe attack of disease.

13th.—To provide tents for say 2,000 prisoners, the probable number to be sent into Camp annually, would cost at the very least Rs. 5,000, a sum sufficient to cover the expense of permanent sheds for the shelter of at least 1,000 men on the convict farm proposed in paragraph 66 of my letter already quoted; and if change of air must be provided for a large portion of the convicts once every year, let it be with the least possible sacrifice to prison discipline and loss in labor. All prisoners sent from the Central Prison exclusively for change of air could be employed on farm work or industrial manufactures in open sheds at the farm prison, which, in my opinion, would be more beneficial in every respect than laying idle in tents.

14th.—In the meantime, much might be done to alleviate the evils complained of by converting the tat-bedding into a kind of hammock, suspended at a convenient height from the ground, and allowing a little more space in breadth of area for each individual. The sanitary arrangements appear to be all that could be desired, with the exception of an insufficiency of fresh air in the barracks at night, arising from the crowding of the prisoners on each other during the hours of sleep, and the want of opportunity, as it may be called, for the foul air to escape from the immediate vicinity of the body. To this may be attributed in no small degree the impaired general health in the convict constitution so often under discussion; and I would suggest that authority may be given to carry out experimentally the plan proposed above in one or two of the Barracks in the Agra and Meerut prisons.

15th.—On a casual inspection of the well-ventilated barracks of a large jail during the day-time, after the prisoners have been outside for some hours, and perhaps a gentle breeze of wind blowing, we are apt to overlook what the actual state of the atmosphere must be when the same places are crowded with human beings during the still calm hours of a hot night, and too frequently attribute to a defi-



cient dietary what is in reality mainly due to the baneful effect of foul air.

16th.—I would beg to recommend to the favorable notice of His Honor the Lieutenant-Governor individuals named in the 91st, 92nd, and 93rd paragraphs of Doctor Walker's Report, and to respectfully suggest that the rewards as therein recommended and noted in the margin\* may be granted.

17th.—Great praise is due to Doctor Walker for the very complete and scientific manner in which he has traced the nature and progress of the disease and treated the subject altogether; and as the accompanying Reports collectively are full of interest, and open up a question of very great importance deserving the fullest investigation, I would beg to recommend that they may be printed for circulation to all Medical Officers in charge of jails and others likely to take an interest in the subject on which they treat.

I have, &c.,

S. CLARK,

*Inspector-General of Prisons,*

*North-Western Provinces.*

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(COPIES.)

*From W. WALKER, ESQ., M. D., M. A., Superintendent Agra Central Prison, to the Inspector-General of Prisons, North-Western Provinces, (No. 442.)—Dated Agra, the 7th July, 1860.*

SIR,—In accordance with the instructions of the Government, North-Western Provinces, communicated in your letter, No. 849, dated 24th April, 1860, I have the honor herewith to transmit a Report on the recent epidemic of fever in this prison.

2nd.—My desire to record as fully as possible the history of so unusual a visitation must plead my excuse for the great length to which my remarks extend.

I have, &c.,

W. WALKER, M. D.,

*Supdt., Agra Central Prison.*

*Report on Epidemic of Typhoid Continued Fever, occurring in the Agra Central Prison in 1860. By Assistant-Surgeon WILLIAM WALKER, M. D.*

TOWARDS the middle of February of the present year my attention was directed to the unusually large number of admissions into hospital under the head of fever. In the latter part of that month several cases assumed what I then considered to be a congestive remittent type, with the periods of remission so slightly marked as to pass unnoticed. Two or three of those cases terminated fatally. The disease very soon, however, showed so many peculiar features that I was constrained to recognize a

First appearance of the type of fever that had never before epidemic. come under my observation in India.

My conception of its nature I have shown by naming it "Typhoid Continued Fever;" and its similarity to that disease as it occurs in Europe I shall point out in a future paragraph.

2nd. *Its contagious nature manifested.*—So early as the 2nd of March, I noted in my diary my impression that the affection was contagious, and made arrangements as far as practicable to meet that contingency. I lessened the numbers in hospital by converting the solitary cell corridors into fever wards, and relieved the jail by sending two hundred men to Secundra, in addition to the convalescent gang already there. I then reported the probable

necessity of a further diminution of the numbers in the : Means adopted in consequence. prison, and received by telegram instructions from Government to move the men out into camp as soon as possible. These instructions reached me on the 16th March, and on the 17th I established a standing encampment, on a rising ground about two miles from the station, on the road towards the Poyceea Ghât. To this camp I transferred fifteen hundred men, leaving in the prison, besides the sick, only the women and children, the under-trial and civil prisoners, with as many sound men as were necessary to keep the jail clean. I then proceeded thoroughly to scrape, fumigate, leep, and white-wash every barrack and building about the jail. This accomplished, I emptied the hospital, caused the gravel of its compound to be dug up and renewed, the whole building to be fumigated for ten days with wood smoke, sulphureous acid, and resin, and then brought back the sick.

*3rd. Results of the standing Camp not favorable.*—Meanwhile little good effect was manifested amongst the men transferred to the Poyceea encampment. They went out into camp on the 17th, and on the 28th I found that the admissions from amongst them had averaged 6·5 daily. I then transferred the camp to another piece of high ground, about half a mile to the north-east of the former site. Here it remained until the 7th April; when, finding that more evil resulted from the exposure of the men in tents and the distress which they suffered from the necessary use of the chain than good from the change of air, I had a consultation with the Civil Surgeon, Doctor Playfair, and on the 8th and 9th brought back the prisoners to their old quarters.

*4th. Further means adopted.*—The contagious nature of the affection had now so clearly manifested itself that the only course left was to follow out the discretionary instructions given by the Hon'ble the Lieutenant-Governor, and

relieve the prison by transferring a certain number of the convicts to the neighbouring zillah jails.

5th. *Despatch of Gangs to neighbouring Zillahs.*—On the 10th April I accordingly had a consultation with Deputy-Inspector Murray and Civil Surgeon Playfair. They agreed with me on the necessity of the step, and I despatched on the 13th 500 prisoners to Mynpoory, on the 25th 100 to Allypore, and on the 5th May 50 to Boodundshuhur.

6th. Nothing now remained but to allow the epidemic to expend itself, guarding as far as possible against its extension, and placing the healthy men in the most favorable

Changes adopted in circumstances to withstand the condition, &c.

regimen. Ghce was added twice a week to the ordinary prison diet, labour was reduced to a minimum, bathing was made compulsory once a day, and sanitary vigilance redoubled. At last the disease began gradually to give way; it had exhausted itself, or, more probably, it could find no constitutions suitable to prey upon. As in the cases of individuals, it passed away without a sign, so as an epidemic it gradually and insensibly disappeared.

About the middle of May the amendment first became perceptible. The gradual increase and declension of the

Decline of the disease. epidemic are well shown by the daily average of admissions into hospital.

In March the admissions average 15·8, in April 23·9, while in May they fell to 12·3, and in June to 4·6.

7th. *Proof of contagion to be considered separately.*—I have said that the power of contagion manifested itself early. To the proof of this important statement I shall devote a separate paragraph.

8th. *Probability of the disease having been brought from outside.*—I cannot assert that the disease was brought into the jail from the outside. Eight men were sent in early in March, from the Joint Magistrate's camp at Futtehpoor Seekree, laboring under severe attacks of the same fever,

and two of these men died. But the peculiar type of fever had shown itself amongst the prisoners under my care ere that time, and it may have been a mere coincidence that the spread of the affection was so much more rapid subsequent to the admission of the men from Futtehpore Seekree.

Results in the Magistrate's hawalât. The epidemic appeared simultaneously in the Magistrate's hawalât, and retained its hold as long there as in the jail. During the four months ending with May I had 50 admissions of bad cases from the hawalât, and 10 of them died.

9th. *Wide-spread character of the epidemic contradicts local origin.*—But if it be a fact that the same disease has prevailed in districts hundreds of miles apart, the question of its origin in any one spot cannot be raised without cavil, and is equally useless and inexpedient. We are inclined, then, to ask : Has this fever been confined to our large jails ? Has it been seen amongst the free population ? Has it occurred amongst our Native Troops ? By giving a positive answer to the two last questions the necessity to consider the first will cease.

10th. *The Epidemic in Saugor.*—In a communication from Dr. Rice, the Civil Surgeon of Saugor, I find the following :—“ In June, 1859, I began to notice that Typhoid Fever was very common among the Military Police. I recognized the disease, and returned every case under the head of ‘Common Continued Fever.’ It was not until August that I had an opportunity of seeing it in the City and Sudder Bazar, where for that month it had been killing every third man.” Dr. Rice goes on to detail the symptoms, which are identical with those which I have met with among the prisoners in this jail. During the first quarter of this year, 357 cases of Typhoid Fever

Statistics of Saugor Dispensary. were admitted into the Saugor Dispensary, and 53 deaths occurred being 9·2 per cent. of the treated. During the same period 40 cases occurred in the Military Police, with three

casualties. But this is not the place to enter into a detail which has been ably submitted by Dr. Rice through the regular channel.

11th. *The disease in Mynpoory.*—From the Civil Surgeon of Mynpoory I learn that several cases of fever, exactly similar to those occurring here, have happened in the Military Police at that station, and that two at least have died.

12th. *In Allygurh.*—The Civil Surgeon of Allygurh writes on April 27th "that several cases of fever, presenting the same characteristics as that prevailing at Agra, were admitted into the Military Police Hospital during the current month."

13th. *In Futtehgurh.*—From the Civil Surgeon of Futtehgurh I have learnt that one case of pure typhus occurred in the Police of that station, and that, during the month of May, six cases of Common Continued Fever were admitted into the jail hospital. Dr. Plank adds, their symptoms, from beginning to end, lead to no other conclusion than that they were cases of true typhus.

14th. *A similar epidemic in other districts.*—A type of fever, similar in its fatal results, has prevailed in the pergunnah of Futtehpore Seekree, in the Agra district, in the Meerut district, in the Allygurh district, and in the Meerut, Allahabad, and Lucknow jails; and I have no doubt that, had I prosecuted my enquiries far enough, I should have found the disease in all these instances to be identical with the Agra Jail fever.

15th. *Locality of origin thus negatived.*—With the above facts before me, I think I am warranted in the conclusion that locality has had nothing to do with the origin of the epidemic; and that, in so far as the jail is concerned, the only point that remains to be investigated is the reason why the mortality has been so great amongst the convicts. To this I shall now shortly advert.

16th. *General causes of lowered health amongst large masses of men.*—There are many causes which, in constant operation, are capable of bringing the constitutions of men into the fittest condition for being acted on by epidemic influences. Of these none are more generally recognized than insufficient food, or food of an indifferent quality, excessive and exhausting labour, crowding together of great numbers of men, bad ventilation of their dwellings, and inattention to ordinary sanitary precautions. I shall first briefly notice how far these obnoxious influences act on the prisoners confined in this jail, and then pass on to indicate certain conditions from which may arise, and in my opinion do arise, a lowering of the individual vital tone, and of necessity a greater liability to suffer from morbid influences.

17th. *Sufficiency and quality of convicts' food.*—With respect to the sufficiency of the convicts' food, we have the fullest data to go upon, comparing their diet scale with that of the common labouring population. By-and-bye I shall have to refer to one essential quality in which our convict dietary differs from that of the free labourer ; but as regards the quantity and nutritive value *per se*, the fullest investigation has shown that the diet in use amongst the peasantry. Very few, indeed, amongst the common people ever consume more than twelve chittacks of atta, with a modicum of dāl and salt ; and I consider the change of two chittacks of parched-  
 “ in the prison diet rather an advantage than other-  
 “ be over a diet composed of atta alone.

*Detail. Condiments at a minimum relatively unimportant.*—The ~~few~~ elements used with the prison diet, salt and chillies, are ~~at~~ must be confessed, at a minimum ; but the difference of a few grains only must be looked on as unimportant where the food is so highly azotized, is in comparatively small bulk, and much more easily digested than the rice diet of the Lower Provinces.

19th. *Enquiry into diet of free population.*—Besides making extensive enquiries amongst the population, I have examined the books of the buncceahs with whom the jail burkundauzes deal, and find their ordinary diet similar in every respect to that of the convicts, never exceeding it in quantity and not often in nutritive power; and, without

Prison diet ample by comparison with other diet scales.

having regard to the diet of the ordinary population, it would appear that thirty ounces of dry nutritive materials, weighing nearly 40 ounces when cooked, might be safely considered as sufficient to retain men in robust health. We know the diet of the English Navy to consist of from 30 to 35 ounces of dry food, that of Houses of Refuge to be 23 ounces, and that of Workhouses from 17 to 20 ounces of solid food. The elements of nutrition are in our jail dietary judiciously combined with one exception to be noted hereafter. The ordinary mortality in our jails is never excessive, and altogether we are driven to confess that the present convict diet scale answers the purpose of keeping the prisoners in good health

Food sufficient to retain health at a certain standard.

up to a certain standard; and we must look elsewhere for the reasons why that standard is notoriously a low one, and subjects the convicts to so great danger on the occurrence of any epidemic, or even slight exacerbation of an usually endemic disease.

20th. *Prison labour not excessive.*—No labour that can be called exhausting or excessive is carried on in the jail. This is evident from the fact that the task exacted is in almost every case one-third under the rate of hired labour in the bazars. In addition to which, the advantage of one day's rest in seven is in favour of the prisoner over the hired labourer.

21st. *The prison never over-crowded.*—No more fertile cause of disease exists than the crowding together of large masses of people. In Great Britain and elsewhere



the assemblage of human beings has given rise on more than one occasion to fearful epidemics. In a lesser degree, we must look on it more as a predisposing than an existing cause of disease. During the period that I have had charge of this jail it has never been filled up to its complement, far less over-crowded. I have never as yet had more than 2,300 men sleeping within the jail walls; whereas it is well calculated to contain 2,500 prisoners, and before the disturbances in 1857 upwards of 3,200 used to be accommodated in it. Since February, 1858, when the jail was re-occupied, the daily average number

Average allowance of of prisoners has been 1635·2, which, cubic feet to each man. supposing the barracks and hospital to be closed, the buildings would give to each man 562·4 cubic feet of air to sleep in. This calculation, sufficiently satisfactory in itself, has little to do with the condition in which the prisoners are placed, for the barracks are so open on all sides, and the roof ventilation is so complete, that they may be regarded as sleeping in cages more than in closed dwellings.

22nd. *Sanitary arrangements satisfactory.*—With regard to the last fertile source of disease, and its bearing on the prisoners under my care, it would be out of place in me to make any remarks. It will be sufficient to say that the arrangements have commended themselves to the several Inspecting Officers in the Medical Department, and there is no existing practice on which I could suggest any improvement. The night-soil is removed outside the walls to a distance from the prison, the latrines are constructed on the best models, wood smoke is in general used as a means of sweetening them, and they are carefully covered with charcoal screens.

23rd. *Why is an epidemic so much more violent in our jails?*—The question, then, still remains unanswered, What is the reason that, when an epidemic arises in this country, its action is so disproportionately violent amongst

the inmates in our jails, or, as in the present case, why has a fever, which we have shown to have been general amongst the free population, assumed an aspect so much more deadly amongst the convicts? The answer is to be found in the lowered tone of health amongst the prisoners; and I shall now proceed to indicate what I consider to be the peculiarities in a convict's circumstances in a large jail which produce this condition, premising a few observations on the previous sanitary history of this prison.

24th. *Previous sanitary condition of this Jail.*—On assuming charge of this hospital, I was struck, while perusing a portion of its records that had been preserved, with the enormous proportion of deaths that had resulted

annually from phthisis, or diseases  
Prevalence of phthisis. brought on by the occurrence of tubercular deposits either in the lungs or mesentery, or in both positions. I found that in one year, 1855, tubercular deposits presented themselves in 36.1 per cent. of the deaths; and the following remarks of the late talented Dr. Hansbrow show to what extent this condition influenced the life-rate of the prisoners:—"The disease which has principally manifested itself is tubercle; and, whether as *phthisis pulmonalis*, consuming the patient, or more insidiously sapping the constitution and hastening the fatal termination of concurrent disorders, may be looked upon as the cause of death in an extremely large proportion of cases."

25th. *Causes of greatest ordinary mortality.*—Tubercular disease and general failure of the constitution terminating in jail diarrhœa, caused it is apparent the largest portion of the ordinary mortality of the prison..

26th. *Periodical occurrence of epidemics.*—This other fact was at the same time impressed upon me, namely, that as far back as the means at my disposal enabled me to extend my enquiries, every successive third or fourth

year has seen the inhabitants of this jail subjected to some pestilential scourge: not always mortal, but on every occasion causing temporary alterations in the diet, removal of the affected into camp, and the employment of other hygienic means to alleviate the complaint. In

Epidemic of scurvy in 1848 two-thirds of the convicts became affected with scurvy, and this, although there had been no diminution in the vegetable diet nor other alteration. Its fearful effects were obviated only by the prompt issue of extra diet suited to the emergency.

27th. *Epidemic of cholera in 1851.*—In 1851 cholera appeared, and, although at the same time prevalent amongst the surrounding population, the rate of mortality amongst prisoners was greatly exaggerated.

28th. *Epidemic of sloughing ulcers in 1853.*—In 1853 gangrenous ulcers of the most intractable character assumed an epidemic intensity. The slightest abrasion turned into a phagedenic ulcer, and hygienic measures had again to be extensively adopted. The affected were sent out to the Ram Bagh, Secundra, and other places in the neighbourhood, and extra diet was supplied with a free hand.

29th. *Epidemic of cholera in 1856.*—Three years pass away, and again, in 1856, cholera swept over the North-West Provinces as an epidemic, and with the wonted result. Its victims were numbered tenfold amongst the inmates of the prison.

30th. *Epidemic of Typhus Fever in 1860.*—Four years have almost elapsed since that visitation, during eight months of which the jail lay unoccupied. Since the re-occupation tubercle has not occurred in any great proportion amongst the prisoners, scurvy has not been detected, gangrenous ulcers are unknown, not a fatal case of cholera has occurred, and yet again the shadow of death has passed over the prison in a form no less strange than fatal.

*31st. No good to be gained by speculating on the origin of epidemic.*—It would lead only to unprofitable speculation to attempt to guess at the exciting cause of a disease so widely spread. Most probably it had its origin in some unknown condition or change in the atmosphere. Its history shows it to have been independent of locality, and its symptoms contradict any hypothesis of a malarious origin. What I would wish shortly to investigate are the causes that act on the constitutions of prisoners, especially when confined in large jails, so as to render them so susceptible to, and so ill able to withstand the attack of, any disease; and, connected with this, how far these causes are remediable.

*32nd. Causes acting injuriously on the convicts' health.*—I mentioned above that, in my opinion, so far as the quantity and nutritive quality of the food went, no fault can be found with the prison dietary of these Provinces. I quite agree with the statement of Mr. Woodcock, the originator of the present diet scale, that it is ample as well as sufficiently good and nutritious; anything in excess is either wasted or bartered, to the manifest injury of the State and the subversion of prison discipline, and

Want of change in the food. yet it appears to me defective in one essential quality. There is almost

a total absence of change in the food. That this is a

Reference to opinion on the point. deficiency not to be lightly passed over many able men have borne

testimony; and I may be excused for calling attention to the evidence on this point of Dr. Balfour, Medical Officer to the Royal Asylum, Chelsea, elicited before the Commissioners on the sanitary condition of the Army (*see Appendix II.*)

*33rd. Wherein consists superiority of the free labourer's food.*—During the past two years I have made extensive enquiries as to the ordinary food of the labouring population, and have noted only this one point in favour of their

regimen: that they are not subjected to constant sameness of diet as are the prisoners in our jails. From one

Sameness of prison diet compared with the changes of diet open to the poorest native.

year's end to another the diet is the same unleavened flour-cakes, parched gram, and pulse, with a bi-weekly interlude of vegetables in place of the last. Compare this with the range of diet within the reach of even the poorest natives. The plain wheaten cake is changed for cakes composed of wheat and barley flour, or wheat and gram flour mixed: or these grains roughly ground are mixed up with butter-milk: or when green on the stalk, boiled into a mess of porridge. Several kinds of fruits and berries, too, come in their season to relieve the sameness of their diet, and continue to aid in preventing the occurrence of dyspepsia and its attendant evils. I do not mean to assert that men may not be supported—nay, even retained in a state of comparative good health—on the present diet of our jails; but I believe that, rich as it is in nutritive elements, it fails from want of variety

Results of this absence of change.

in keeping the digestive organs up to their full powers, and is one cause of the low standard of health amongst the men.

Partial relief by substituting coarse grains in cold weather.

During the two past cold weathers, I substituted bajra flour bread for several months instead of wheat.

This, however, affords but a very partial relief to the mono-

Further Report on the subject intended.

tony to which I refer. But the subject is too extensive to be

slurred over in the body of a Report having reference to a particular disease; and I intend, either in an Appendix to his Report or on some future occasion, to submit what I consider may be done to obviate this state of matters without materially increasing expenditure, and shall then also refer to a doubtful point in the combination of the nutritive elements of the food.

34th. *Injurious conditions inseparable from the circumstances of a Central Jail.*—I have now to touch upon a condition of things in a measure inseparable from the idea and intentions of a Central Prison, as regards intramural labour and perfect isolation of the felon from the outer world. If these conditions are to be insisted on as embodying the idea and object of a Central Jail, then the evils I refer to are irremediable; and the consequences

Alleviation possible. must be accepted, without a prospect of alleviation. But if it can be shown that more is lost by a strict adherence to these principles than might be gained by a timely relaxation from them, I think the subject not unworthy of consideration.

35th.—I have said in a previous paragraph that this prison cannot be considered overcrowded; yet there are circumstances connected with this massing together of a large body of men which I am confident have a great effect in producing that general lowering of the vital tone of which we have seen the results in the recent epidemic. In a native city or village we often have a larger population congregated together in a smaller space than is included

Crowding in Native communities different from that in jails.

ed within the walls of this jail; but the inhabitants are never retained within defined limits day and night. They wander in pursuit of their daily occupations and pleasures, and thus relieve the atmosphere of

Condition of the convicts in a large jail contrasted with the former.

their quarter and themselves enjoy fresh air and change. Instead of this, we have here at least 2,000 men confined within a space of less than 35 acres, eating, sleeping, and labouring within that area. The air is never relieved from the breathings and exhalations from the bodies of those 2,000 men. From their sleeping barracks they pass to their workshops, and from the workshops to the dining yards, and back again to their sleeping barracks; but all

the year round day and night they breathe the same atmosphere, pregnant as it must be with impurities, however perfect the ventilation and with what care soever sanitary measures may be carried out. We are only too apt to apply the tape line and measure out a certain number of cubic feet of space as capable of supplying a human being with air to fill his lungs and keep him in health. There is something else wanted here, as in the

*Change of air necessary to robust health.* case of the dietary. Enough is given to keep the prisoner in health

up to a certain standard, but at the same time there is that withheld which is calculated to raise that standard to a nearer approximation to the health of the same class of men in freedom.

36th. *Proposed remedy.*—There appears to me to be only one way of remedying this evil, and that is by affording the great body of the prisoners a change once a year. By sending them out into camp for only two weeks during every cold season the health of the men must be acted on beneficially: that listless, torpid state of mind into which the greater proportion of them sink will be relieved, and above all the jail itself will be thoroughly aired and sweetened from the very absence of that cloud of human exhalations which is otherwise so constantly present. As Medical Officer in charge of the prisoners' health, I am convinced of the soundness of what I urge; while at the same time, as Superintendent of the Prison, I am not unaware of the reasons that may be pressed against it practically. Increased expenditure, injury to discipline, loss of skilled labour, with a corresponding check to the manufac-

*Reasons to be urged against the proposal.* tories, are potent arguments against what I propose. Yet these objections

are not without counterpoise. To reflect on the enormous expense entailed by an epidemic such as we have emerged from, on the disorganization that results during its continuance, on the effectual and lasting paralysis of

skilled labour that occurs from the mortality (for disease makes no discrimination between a skilled and an unskilled workman), is the least fallacious method of judging the proposition. I have thrown out the suggestion, because I am impressed with its utility, not in warding off the occurrence of an epidemic, but in mitigating the fearful results which all past experience has shown to follow an outbreak of disease in every *large jail*. It may be ridiculed as Utopian with respect to prisoners; it has never been so with respect to men and women in ordinary life. Change of air is the most potent restorative within reach of the debilitated, as it is the most powerful curative in the hands of the physician.

*37th. Causes of lowered health amongst convicts which are irremediable.*—In addition to these causes, there are others equally powerful, but unfortunately irremediable. The effects of the mental depression from which men suffer for the first two or three years of their imprisonment can hardly be overrated. They fall into a listless state of mental torpidity, careless of everything, and impressed with the idea that they will never see their homes again. This condition of mind re-acts on the physical powers; digestion is impaired, and the system becomes languid and lowered in tone.

*38th. Causes referred to bear almost wholly on Central Jails.*—It is worthy of remark that all those influences on which I have been dwelling bear almost wholly, or in an infinitely greater degree, on the convicts in our Central Jails. In the Zillah Jails it is matter of notoriety with how much facility the friends of the prisoner can and do remedy the evil effects of sameness of diet. Labour on the roads provides amply for a change of air, while the fact of the men being confined for shorter terms, and surrounded by the familiar things of home, removes from their imprisonment much of the horror they experience in banishment, and frees them in a measure from the dangers of great mental depression.



39th.—But to pass to the disease itself. In attempting to group symptoms so as to indicate the type which an epidemic disease assumes, we are at once met by the difficulty which arises from the varying degrees of intensity with which the disease attacks different individuals. In the case of a fever epidemic this difficulty is much increased by the close alliance of certain groups of symptoms occurring in types of fever in other respects

the most distinct. Thus, while in its main features the epidemic from which we have just emerged stands out quite separate and distinct from the ordinary fevers occurring

Difficulties in determining the type of a fever epidemic.

in this country, yet in its lesser degrees of intensity it assumed characters which in ordinary circumstances would cause it to be ranked with the usual malarious fevers with which we have so often to deal. On the whole, I think repetition will be avoided, and a more clear idea gained of the distinctive features and type of the disease, by my giving a short sketch of its most usual course, adding any supplementary remarks that may be necessary on exceptional symptoms and complications. I do not mean to say that every symptom detailed in this general outline occurred in every case, but they were all to be found in every small group of cases.

40th. *General symptoms.*—Two-thirds of the men coming under treatment asserted that their illness commenced with a shivering fit. While inclined to accede to this statement in so far as the occurrence of the ague-fit is concerned, I have good reason to believe that in most cases a previous period of malaise was passed through, either unobserved by the men themselves, or (when the disease became so fatal) concealed by them to avoid their being sent to hospital. Besides the evidence on this head, gathered from the lumberdars of the barracks and gangs, the

rapidity with which great bodily weakness supervened points to a period during which the fever-poison had been lurking in the system and depressing the vital energies.

Early muscular depression.

When the attack came on during the night the men were hardly able to walk to hospital in the morning, and never able to carry their own bedding. The

Physical expression.

expression of their faces rapidly altered: they looked wearied, listless, and unconcerned, and they were already possessed with the idea that they would never recover from the disease. In strong men the countenance

Head symptoms.

at first was full and flushed, the veins protruding from the forehead, and the eyes suffused or even bloodshot. Headache was by no means a constant symptom, but when present was always complained of across the forehead. Pains in the

Skin.

back and limbs were constant and severe. The skin was hot, dry, and pungent: the pulse at first full and

Pulse.

State of tongue.

bounding, and varying from 110 to 130 in frequency. The tongue after a few hours became covered in the centre with a dry white fur, the edges and tip becoming bright red. In a few cases it remained dry and glazed, but without fur through-

Vomiting.

out the attack, acquiring a dark brown line down the centre as the disease advanced, and becoming a little furred on the approach of convalescence.

Vomiting occurred in the early stages in many cases:

Condition of bowels.

very often the belly was or became tense and swollen, with considerable tenderness on pressure in the epigastrium. The bowels were mostly constipated, but a slight purgative was often sufficient to set up uncontrollable diarrhoea. The urine was scanty and very high-coloured: passed with considerable difficulty, and very often completely retained. Through-

Condition of respira- out the epidemic the respiratory  
tory organs. organs were much affected, mostly  
so, however, at its commencement, viz., in the beginning  
of March. At that time scarcely a case came into hos-  
pital without having this complication most violently. The  
laboured quickness of respiration, and the fine rhonchus  
disclosed by the stethoscope, showed, even in the ab-  
sence of cough and sputa, to what extent congestion had  
advanced.

41st. *Muscular depression.*—The nervous centres rarely  
became affected for the first three or four days, but the  
muscular depression increased hourly. The men lay on  
their backs with out-stretched limbs, unwilling or unable  
to move. The hand when raised shook, and could with  
difficulty be directed to the wished-for position: the tongue  
was protruded tremulously and with  
apparent effort. By and bye the func-  
tions of the brain begin to be impaired. The patient lies  
dosing uneasily; his eyelids are closed, but he does not  
sleep. If you forcibly open them, he complains and turns his  
head from the light, and you can see that his pupils are fixed,  
sometimes contracted sometimes dilated. At a still later  
period you require to shake him, and speak sharply to  
attract his attention; but even then

State of nervous cen-  
tres. Condition of pupils. he would answer you rationally,  
only he is unwilling to be disturbed, and lapses again into  
the same dosing state. About the fifth day he gets rapidly  
worse. He is incapable of the slightest muscular exertion,  
and slips down off his bedding on to the centre pathway  
of the hospital. His pulse, from being pretty full, becomes  
hourly smaller, weaker, and more rapid; sordes collect  
about his teeth and gums; his tongue becomes dry and

Occurrence of sordes. baked; the fur browns and cracks,  
but does not thicken much. His  
throat is so parched that he is made to swallow with the

greatest difficulty; he loses his voice and speaks only in a whisper; he complains of no pain.

Total termination. Gradually low muttering delirium supervenes; he becomes insensible to all surrounding objects and cannot be roused; passes his stools and urine involuntarily, and dies comatose.

42nd. The above is a rough sketch of the course which the majority of the fatal cases ran. With the few exceptions of men who died within 48 hours after admission into hospital, the crisis of the disease occurred

Time of critical periods. on the 5th, 7th, or 9th day. At those periods the patient's system was either overpowered by the blood-poison, and he died comatose, or the fever left him, and he became convalescent. Usually there was no very marked crisis: sometimes an increased flow of urine, less

Symptoms of marking frequently a profuse perspiration, the crisis. but almost always an increased discharge from the bowels.

Neither the patient nor his attendants could tell exactly at what time the fever left him. Within a couple of hours his skin became soft and slightly moist, from being hard, dry, and pungent; his pulse lowered in rapidity and became soft; his tongue and mouth moistened; he complained less of thirst and dryness of throat. His countenance in a few hours was quite altered; instead of the restless twitching irritability of his roused condition, and the

Gradual resolution of dull, listless quiet in which he lay febrile state. when undisturbed, his face became quiet, relaxed, and placid; his eyes

were opened and tolerant of light. He lay on his back equally helpless as before; but beyond weakness and a feeling of being bruised all over he declared himself well.

43rd. *Frequent occurrence of relapses.*—Often the cases now went on well, and the men acquired strength day by day; but in a large proportion, after the third or fourth day of convalescence, a change occurred. This

resulted sometimes no doubt from indiscretion on the part of the patient, but more probably from the imperfect elimination of the morbid matter from the blood. All the former symptoms return with increased violence. The tongue,

which had been moistened and gradually cleaning, becomes again dry and fissured, fur collects and thickens, and a brown crust forms

Typhoid symptoms intensified in relapse.

rapidly. All the typhoid symptoms are intensified,—the dry pungent heat of the skin,—the small, quick, thready pulse,—the restless, semi-delirious wakefulness,—and, finally, the cold clammy sweat that ushers in the quiet of coma.

44th. *Total termination of relapse most commonly by dysentery.*—If the patient lived over forty-eight hours of the relapse, Nature seemed to make an effort to throw off the blood-poison by a profuse discharge from the bowels. At first the patient passed large quantities of dark, gravelly-looking fœces, with a most offensive odour; but this rapidly changed to shreds of mucous, mixed with slime and streaked with blood, and often to pure blood. Although several cases rallied on the occurrence of this discharge, they generally perished from the subsequent chronic dysentery.

45th. *Cases exhibiting peculiar features.*—Four or five cases exhibited features so distinct from any detailed above that they demand separate notice. With them after the fever had lasted from twenty-four to forty-eight hours, all the symptoms seemed to subside; the patient's

Symptoms. skin became quite cool; his pulse quiet and soft; his breathing easy

and natural. He lay on his back, but complained of nothing, and only his unnaturally quiet condition attracted attention. His eyelids remained closed, but the eye had no intolerance of light: the pupils were sometimes contracted, at other times dilated. He could answer ques-

tions when roused, but did so very unwillingly. The patient usually lay in this state for three or four days without tasting food, and at last passed quietly from sleep into death. The post-mortem examinations in those cases revealed serous effusion to a great extent in the ventricles, and under the pia mater of the brain.

46th. *Cases of extremely rapid fatality.*—In a few cases the disease was so rapidly fatal that the men passed at once into a state of coma. The blood-poison seemed instantaneously to overpower the nervous system. These extreme cases were seen most frequently in the hospital attendants,—strong, vigorous men, but who were of necessity much exposed to contagion. The attack in this form was often ushered in by intense nausea and retching; but none of the patients complained of pain on pressure in the epigastrium, indicating that the origin of the vomiting lay in the cerebrum. Nine men died within 24 hours, and fourteen died within 48 hours of their coming under observation.

47th. Before passing on to consider a few of the sequelæ of the disease, I may advert here to an observation having reference to the sequence in which the prime characteristic of the epidemic, namely, congestions of the internal viscera, occurred. In the end of February and during the early half of March my attention was chiefly attracted to the respiratory organs: all the symptoms pointed to the lungs as being deeply involved in mischief, and the stethoscope gave no uncertain indications. Wheezing and hissing sounds were to be heard over the chest, and the post-mortem examinations, as will be seen, sustained the diagnosis. Although at no period of the epidemic were the lungs free from con-

gestion, it was evident that at first the tendency to death was by apnoea. Taking into consideration that at that time the mean Range of temperature was 36·4, the prominence of the lung affection is scarcely to be wondered at.

48th. After the second week in March, the lung complication lessened, or at all events became shrouded in the more imminent danger arising from brain congestion; and the post-mortem examinations revealed an amount of vascular congestion, and a frequency of serous, and even apoplectic effusions in the head that were combated with the utmost difficulty.

49th. *Bowel complications.*—This marked pre-eminence of head disturbance in its turn yielded to another group of symptoms originating in congestions of the abdominal organs, more especially of the liver and mucous membrane of the bowels. The implication of the head and chest did not cease, but became much less marked, in the presence of the abdominal symptoms.

50th. *Their extent.*—This change, or rather additional complication, occurred after the first week in April, and continued Symptoms. with greater or less prominence until the fever began to abate in the end of May. Pain was complained of on pressure over the epigastrium and right hypochondrium; a jaundice-tinge of the conjunctiva and the various secretions was oftener visible; abdominal tenderness and tympanitis were common; and hiccup, often uncontrollable, accompanied or succeeded to sharp attacks of diarrhoea or dysentery.

51st. *Sequelæ of the Fever.*—By far the most common and most fatal sequela of the fever has been dysentery, or dysenteric diarrhoea. In a few cases, as I mentioned above, this complication showed itself very early in the attack and

rapidly carried off the patient. Most commonly, however, it did not arise until after a few days of convalescence, and seemed to have its origin in that flux from the bowels so frequently noticed at the crisis of the attack. At first the stools were fœculent, but unhealthy in color, and very foetid; subsequently altered bile, mucous, and blood

characterized the discharges. The Kind of discharges. post-mortem appearances in the large bowel varied with the stage at which the patient died; but in no respect did the state of the mucous Post-mortem conditions. membrane differ from what is ordinarily observed in cases of idiopathic dysentery. I did not

Numbers who died of this sequelæ. notice in 104 cases examined anything like a selection of any one set of glands as the seat of inflammatory lesions. I need only mention that, out of 299 deaths resulting from the epidemic, 76 were occasioned by the subsequent diarrhoea and dysentery to show how very prevalent and fatal this complication proved.

52nd. *Diseases developed in lungs.*—In the general congestion of the internal viscera which accompanied the fever we have seen how severely the respiratory organs suffered, and in many cases they had laid in them the foundations of diseases that could not but terminate fatally.

Low Pneumonia. Sometimes low pneumonia supervened, and the patients lingered on long after the fever-poison had eliminated itself from their systems and appeared to perish of debility and general malaise. In six of those cases which I examined after death grey hepatization was found in a portion or the whole of one lung.

53rd. *Phthisis.*—In three men confirmed phthisis has resulted, and is now far advanced towards a fatal termination; while in many others, I have no doubt deposits of tubercle have taken place which will sooner or later carry them to their graves.

54th. *Swellings of parotid gland.*—Swelling of the parotid gland on one or both sides occurred so often at the



crisis of the fever as to form a characteristic feature of the epidemic. Twenty-six marked cases came under my observation, and many other patients complained of pains and stiffness in the parotideal region of whom I took no note. Of the 26 cases 10 resulted in suppuration; in the others the swelling gradually resolved itself under remedial measures. Erysipelas of the head followed these swellings in four cases, two of which proved fatal; while two of the cases in which suppuration occurred died of the exhaustion consequent on the profuse discharge. As I shall have to refer to the point again, I shall not now do more than indicate this as one link of connexion between the fever we are now describing and the Typhoid Fever of Europe.

55th. *Weakness of Intellect.*—Permanent weakness of mind has resulted in one case.

56th. *Rheumatism and Neuralgia.*—Chronic rheumatic pains in the limbs have been most persistent in a great many cases, and greatly retard convalescence.

57th. *Œdema and Anasarca.*—Œdema of the lower extremities has been excessively common, and in one case general anasarca supervened. The man made a good recovery.

58th. *Treatment of the disease.*—I have very few remarks to make on the treatment of the disease. It resolved itself at last into the ordinary expectant and watchful treatment that must ever be resorted to where a poison has to be eliminated from the system, and where no specific has power to destroy it or cut short its period of action.

59th. *Initiatory dose.*—Most usually when a man was admitted, if his bowels had not been freely opened, a dose of four to five grains of calomel was administered, and followed up by a senna draught. Subsequently the condition of his bowels was regulated by castor oil, or warm water enemata.

60th. *Effects of Quinine.*—Quinine I soon found to be positively injurious, until convalescence had commenced,

when it became invaluable as a powerful tonic and agent in preventing the occurrence of a relapse.

61st. *General Treatment.*—When the patients' bowels had been well acted upon, I ordinarily commenced by giving two grains of calomel, or three grains of hydrargyrum creta alone, or with small doses of James's or Dover's powder, three or four times in the twenty-fours. In a few cases I tried the mercurial treatment more vigorously, and

*Results of Mercurial treatment.* thought that in some an improvement took place simultaneously with the

manifestation of the mercurial action on the system. But this was by no means constant, and occurred so frequently at the critical periods noticed in the other cases, that I rested no weight on the observation, and very soon gave up the practice.

62nd. *Use of Tartar Emetic and other Remedies.*—Grave's treatment, by small doses of tartar emetic and laudanum; the use of simple diaphoretics and diuretics, with surface sponging; the employment of powerful diuretics, and not a few empirical remedies, were all tried in turn, but, as might have been anticipated, without the slightest effect in cutting short the disease.

63rd. *Treatment of Complications.*—Meanwhile, the condition of the various internal organs had to be carefully watched. When the face was full and flushed, the pulse full and hard, and the eyes suffused, I resorted to leeching and cupping at the nape of the neck, followed by cold applications, and large blisters to the scalp. In the case of the lung complication, I trusted most to large blisters. Frequently, and with the best effect, I used the cupping glasses and blisters over the right hypochondrium and epigastrium, where tenderness was complained of on pressure.

64th. *Period suited to antiphlogistic treatment very short.*—The stage suited for antiphlogistic treatment never lasted long, and a strong tendency to depression, with dry, brown tongue and feeble pulse, rapidly supervened. Then it

was that the want of vital power in the convict constitution manifested itself. Strong soup by the mouth or by injection, rum, and other powerful stimulants, were indispensably necessary to keep the vital spark alive through the struggle that followed.

65th. Subsequent complications had to be met by specific treatment ; but it is unnecessary to enter into all the details.

66th. *Tediousness of convalescence.*—I have found convalescence tedious in almost every case. Great weakness of the digestive powers, constant vomiting after meals, irregularities of the bowels, and the passage of undigested food, indicated by their persistence the great shock which the men's constitutions had sustained. Tonics of all kinds have had to be perseveringly continued, and frequently changed, and the diet made of the lightest and most nourishing character.

67th. *Post-mortem appearances.*—The post-mortem appearances in all the fatal cases examined had one common characteristic, that of great congestion of almost all the internal viscera. To appreciate this, it is necessary only to glance at the analysis of the examinations of 104 bodies, which I made with great care, and all within six hours after death. (*See Appendix A.*) I examined the head in 58 of those cases, and found the brain healthy in 12, much congested in 32, having serous effusions in considerable quantity in 6, and apoplectic effusions in 8. In the last, the blood was in all the cases effused under the pia mater, and spread over the cerebral convolutions in a thin layer. In 5 cases I found the lungs healthy ; in 61 they were congested ; in 32 much engorged ; and in 6 one, or part of one lung, was hepatized. The liver was healthy in only 3 cases ; in 63 it was dark and engorged with blood, being at the same time often enlarged ; in 37 cases it was soft, and of some shade of yellow in color ; in 1 case it was small and hard. The gall-bladder was empty in 32 cases, full in 70

and engorged in only 2. The spleen was healthy in 66 cases, enlarged and engorged in 28, small and hard in 10. The kidneys were normal in 53 cases, highly congested in 31, and otherwise diseased and degenerated in 20. The mucons membrane of the colon was congested in 37 cases, and showed ulceration in some parts of its course in 28 ; in the others it was healthy. In only 23 out of the 104 cases was a general jaundice-tinge observable, and only in 8 of these was it noticed in the conjunctiva before death.

68th. *Deductions from post-mortem examinations.*—The deductions from these observations resolve themselves into the following:—Congestions of the internal viscera were the characteristic pathological feature of the disease. Whether we are to regard the appearances in the head as due to a true encephalitis, and the engorgements of the lungs and liver to pneumonia and hepatitis respectively, remains an open question. Cases terminated fatally, where I could detect no morbid appearances sufficient to account for death : others I examined, where the lesion of one important organ was quite sufficient to account for all the symptoms, and the fatal result ; but between these two extremes lay the great mass of the mortality, where the length of the patients' struggle against the disease was the measure of the morbid conditions, induced by the fever poison in several vital organs simultaneously.

69th. *The Contagious nature of the Fever considered.*—I would now wish to direct attention for a short space to the consideration of a point, the most important in determining the character of the epidemic, and which of itself will suffice, if proved, to separate it from the ordinary malarious fevers of India. If the disease can be shown to have been contagious, it possesses a characteristic feature of Typhoid Fevers in temperate climates, and separates itself at once from all but the specific exanthematous fevers, which we meet with in this country; for to say that a fever

is contagious, is to assert that, in its origin as well as in its essential conditions, it differs entirely from fever believed to result from exposure to malaria.

70th. That this fever did possess the property of contagion in an eminent degree, rests on the most indubitable evidence. It showed itself very early

Proofs adduced.

in the epidemic, and continued throughout to be a marked characteristic. I shall pass on at once to enumerate a few observations and facts concerning certain groups of men, who were attacked by the disease, obviously in consequence of their being in contact with the affected.

71st. *Cases of the Hospital Establishment.*—At the commencement of the outbreak I had three Native Doctors and a Compounder on my hospital establishment; one after another they were struck down, and the disease ran its course with greater or less severity. The life of Kunhya Lall, my first-class Native Doctor, was despaired of for many days: he recovered, but with his health so shattered, as to necessitate his transference to a less laborious appointment. Native Doctor Emam Bux suffered with equal severity, and is now in a most precarious state, from the rapid development of phthisis pulmonalis. Acting Doctor Mukhun Lall, and Compounder Luchmun, were both away from duty for many weeks on account of similar attacks.

72nd. *Case of Police Battalion Native Doctor.*—To take the places of these men, through the kindness of the Civil Surgeon, Dr. Playfair, the Native Doctor of the Police Battalion, Sheikh Chunnoo, was placed at my disposal. After laboring indefatigably for about a month, he too was struck down, and his life was saved only by the most assiduous care on the part of Dr. Playfair; his was one of the worst cases which I saw recover, and had he been a prisoner, he certainly must have perished.

73rd. *Cases of Vaccinators doing duty in Hospitals.*—On the 14th April, I received very kindly from Dr. Currie, the

Superintendent of Vaccination, the aid of six of his vaccinators. Two of the most assiduous of them were, within three weeks, lying at the point of death. They both recovered after a tedious convalescence. To sum up, not one native connected with my hospital establishment, who was present throughout, or at the height of the epidemic, escaped from an attack.

*74th. Cases of Hospital attendants on the sick.*—From the peculiar type of the fever, I was compelled to employ a large number of hospital attendants on the sick. The results in their cases were the same. From the 1st of March, until the disease disappeared, 324 men were entered on the hospital books as attendants on the sick. Of these 221 caught the fever, and of the number attacked 56 died. That is to say, no fewer than 68·2 per cent. of the attendants on the sick suffered from the fever, and of those attacked 25·3 per cent. died.

*75th. Period of incubation how long?*—The period of incubation, before the disease developed itself, was from 15 to 19 days; or at all events the men labored in the hospital up to that time, and then fell ill. As might have been expected, the disease in them assumed its most virulent aspect, and the rate of mortality was very high. At one time, I thought to mend matters by changing the whole gang after seven days; but my first experiment showed that the blood-poison, long ere that time, had permeated the system, and only waited its time to develop itself. On the 23rd March, I relieved 57 men from duty as hospital attend-

ants, and sent them out to the encampment at Poyeea Ghât. They were all apparently healthy, and were placed at once in the most favorable circumstances for retaining their health. I kept them in tents, separate from the prisoners already in camp. They had no labor to perform, and I had little reason to expect the result that followed. No one fell sick up to the 29th March, but from

Relieving the gangs of hospital attendants of no benefit.

that date to the 9th April, no fewer than 28 out of the 57 were sent in with bad attacks of the fever.

76th. *Cases of a gang of Kunjurs from Muthra.*—I shall give only one more illustration, although I might multiply them indefinitely:—A gang of eight Kunjurs was received from Muthra on 22nd March, and as the necessity for keeping the different wards thoroughly clean was pre-eminent, I ordered them at once to perform sweeper's work in the hospital. Within 20 days six of these men had caught the fever, and two of them died. No doubt the power of the contagion was, in their cases, very much intensified, from their coming so much into contact with the excrementitious discharges of the affected; but this does not alter the force of the illustration they afford.

77th. *Certain Hospital conditions capable of producing this feature.*—I consider the above facts sufficient to prove the contagious nature of the disease. I am fully aware that there are certain conditions of a large hospital, which will serve of themselves to produce this feature in diseases, which otherwise might have little claim to the evil distinction. Nothing has I believe a more powerful influence in rendering diseases malignant than a crowded hospital; nothing increases mortality and retards recovery so much as that so well named "General Hospital atmosphere;" but I cannot blame myself for the neglect of any precaution to avoid error on this head. When the admissions became numerous, I at once relieved the regular hospital, by forming the large airy solitary-cell corridors, along with five

Means adopted to guard of the ordinary sleeping barracks, against them. into hospital wards. The healthy prisoners were kept aloof from the portion of the prison where these wards were situated, and every precautionary measure taken to prevent the spread of the disease.

78th. Although fully convinced of the eminently con-

Non-diffusive power of tagious nature of the fever, I do not think that the poison had much diffu-

sive power; and I find that Dr. Watson, the Civil Surgeon of Mynpoorie, has made the same observation with reference to the men under his care. Had it been otherwise,

I could not explain why the guards of the jail were in so few cases affected, and why certain isolated groups of prisoners in the jail have had throughout a singular immunity from the disease. It is obvious why so few of the *nujeebs* and *burkundauzes* suffered from the epidemic. They never came into sufficiently close contact with the sick. Where they did so the same results followed; for out of twelve *burkundauzes* employed at different times in the wards of the hospital, seven men caught the fever, and one died.

79th. Amongst the main body of the convicts no gang nor class, except the sweepers, suffered more than another; while there were four divisions living in a measure apart

Certain groups of prisoners free from the affection, from the rest that scarcely had the disease amongst them at all. The

under-trial prisoners, averaging daily 75·3, never had a case; amongst the women and children, averaging 65·2, only one case occurred. In the gang of non-laboring prisoners, averaging 15·3, no case occurred; while in the civil prisoners' ward, up to the 11th April, a similar immunity prevailed. On that date, however, two cases occurred, and one proving rapidly fatal, a representation was made to Government, which procured the temporary release of the rest, and, in all probability, arrested further mortality.

80th. *Circumstances in which these groups lived.*—The barracks in which each of those groups of men lived are separated by high surrounding walls, and by a yard from the barracks of the other convicts. They were not perfectly isolated from them, but sufficiently so, never to come within range of the contagion; for, as I have said above, I believe that almost absolute contact with the affected was necessary to communicate the disease.



81st. *Results of the change in the detached gangs.*—The gangs sent to Mynpoorie, Allygurh and Boolundshuhur, were much benefitted by the change, and their removal from the prison gave the remaining convicts a much greater chance of recovery. That they would carry the disease along with them was to be expected, but in a much milder form. The Mynpoorie gang arrived at that station on the 17th April, and, up to the end of June, there had been 96 admissions under the head of fever and 16 deaths; 11 of them were pure cases of the fever, and the remaining 5 were from bowel affections, and other sequelæ of the disease. No casualty has occurred at Allygurh. One death is reported at Boolundshuhur under dysentery, but whether idiopathic or secondary, I have not been able to ascertain.

82nd. *Similarity of this epidemic to Typhus in Europe obvious.*—To a professional man, after a perusal of the symptoms, complications and sequelæ of this epidemic, it is almost superfluous to dwell upon the points of similarity between it and the Continued Fever of temperate climates. The diseases appear to me identical. But to place the point in as strong a light as possible, I may be allowed to recapitulate the conditions common to both.

83rd. *Conditions common to both affections.*—Both diseases commence ordinarily with a shivering fit; in both there is a previous period of incubation: great and rapid muscular depression is common to both; the symptoms referable to the skin, tongue and pulse, are identical; congestions of the internal viscera are characteristic of both; all the sequelæ of Typhoid Continued Fever in Europe are exemplified in this epidemic. Chronic bowel affections; the development of latent diseases, such as phthisis; localized glandular swellings, erysipelas, rheumatic and neuralgic pains in the limbs; œdema of the extremities, and permanent weakness of intellect, have all resulted. But, above all, the disease has proved itself eminently

contagious; thus allying itself, in the strongest possible way, with its prototype in the temperate zone. Lastly, periodicity, and the occurrence of critical discharges, mark the course of both diseases.

84th. *General Statistics of the disease.*—A few remarks remain to be made on the general statistics of the disease. Out of a strength of 2,232 men, 2,024 cases of fever were admitted into hospital during the five months, from February to June inclusive. Out of the number, 299 casualties resulted; so that the ratio of the sick to the strength was 88·6 per cent., the ratio of deaths to treated being 14·7. I have prepared a Table (*see* Appendix E.) which, although giving only an approximation to the truth with regard to the Hindoos, yet indicates one or two results other than we would have predicted from such a type of disease. I have taken the Caste-roll of the prison, and divided the whole of the prisoners into six classes,—Hindoos not usually flesh-eaters, Hindoos who usually eat flesh, Mussulmans, Christians, and men of the sweeper caste; the last ought properly to come under the second head, but I have kept them distinct, as they labored under conditions which did not affect the other classes, and which had a manifest effect on their mortality.

85th. *Proportion of admissions and casualties in the different castes.*—It will be seen from this Table that the number of admissions, and rate of mortality, was highest amongst the sweepers. To the causes of this I shall subsequently refer. Next to them, the sickness appears to have been greatest among the Hindoos usually flesh-eaters, and least of all amongst the Mahomedans; while the death-rate is exactly the reverse of this, the mortality amongst the Mussulmans being as high as 17 per cent., and that amongst the flesh-eating Hindoos only 12·5. The Hindoos, not usually flesh-eaters, seem to have had an intermediate rate of sickness, but the mortality amongst them went up as high as 18·6 per cent.

86th. *Greatest mortality amongst the Sweepers.*—Amongst the sweepers, as I have said, the greatest mortality occurred. The ratio of sick to strength amongst them ran up to 91·1 per cent., and that of mortality to cases treated as high as 30·5 per cent. Two causes combined to produce this result. When the outbreak of disease took

Reasons thereof.

place, the sweepers were just sufficient in number to provide for the thorough cleaning out of the jail. As their numbers were lessened by admissions into hospital, the work naturally fell more heavily on those who remained, and although I entertained men from the bazars to obviate this in a degree, yet the sweeper's labor could never be wholly intermitted, as was that of the other prisoners. In addition to this, it must be borne in mind that these men were engaged all day long in removing the night-soil from the privies, and that, in respect to the hospital wards at least, they must have been exposed to the noxious exhalations emanating from the morbid discharges of the patients.

87th. *No comparison between results in other districts can be instituted.*—I have no means of comparing the rates of mortality in the other jails and districts that have been similarly affected. I consider the ratio of deaths under my care to have been high,—far higher than ought to result under more favorable circumstances. The same type of fever has, however, in temperate climates, and under more advantageous conditions, been more fatal than here: all we can hope is, that the investigation of the sanitary conditions under which our prisoners live, may result in such an improvement of their life-tenure that they may be found better able to bear up against any future epidemic of the kind.

88th *What has been taught us by the Epidemic?*—It may be worth while to ask,—What have we gained from the experiences of this epidemic? Have any new truths been dragged to light in the keen introspection with which we

have been compelled to scrutinize the internal economy and hygiene of the jail? Are we now in any better position to stave off an epidemic of the kind; or have we at least been able to determine some principles to guide us on a recurrence of the same circumstances? Not much I fear if anything new has been elicited. "To examine the relations existing between the human constitution on the one hand, and the various external objects or influences by which it is surrounded on the other, and to deduce from that examination the principles or rules by which the highest health and efficiency of all the functions may be most certainly secured," is more than ever imperatively demanded of us; and if the occurrences of the past four months lead us to follow out, closely and unflinchingly, the deductions to be drawn from those relations, an incalculable good will arise out of apparent evil.

89th. *Certain facts of practice deducible.*—Apart from this, however, there are certain facts of practice which cannot be too strongly impressed on the attention; for epidemics of contagious disease will recur, and must be combated. On the first appearance of such an affection in a jail, every prisoner that can be disposed of ought to be removed from the prison; this, not so much with the object of separating the healthy from the affected, as to allow the affected some small chance of recovery. Nothing is so well established, as that the intensity of an animal poison is increased a thousand-fold

Necessary for diluting the poisonous atmosphere of the hospitals.

by having the patients crowded together. The atmosphere around them becomes a deadly poison, and every breath they draw carries its load of death into their systems. This atmosphere must be diluted by ventilation, and the scattering of the affected over a large area; and at whatever expense of convenience or extra labor, every barrack in a large jail ought to be converted into an hospital ward, and made to contain the smallest possible number of

patients. I feel that I cannot insist on this too strongly ; and I am confident that, had it been in my power to relieve this jail for a period of 1,500 men instead of 650, the mortality would have been immeasurably lessened. Let this condition be accomplished efficiently, then medicine, careful nursing and diet, will all have their full curative effects. Let it be attended to imperfectly, or not at all, and the physician may shut up his medicine chest, assured that the extinction of the disease and of his patients will be simultaneous, and quite independent of the means at his disposal.

90th. *Thanks due to the Medical Officers of the stations.*—I wish here to express the strong obligations under which I lie to the Deputy Inspector-General of Hospitals, Dr. Murray, and to the Civil Surgeon, Dr. Playfair. I found them ever ready and willing to aid me by advice and suggestions, and again and again, at great personal inconvenience, they responded to my request for consultations on the means to be adopted. To Dr. Playfair I feel especially grateful for the unselfish readiness with which he denuded his own hospitals and dispensaries of Medical subordinates, to meet the exigencies of my charge ; and this, too, under circumstances which gave him little hope that his Assistants would escape from the mortal contagion, which had struck down all my own establishment. To the Superintendent of Vaccination, Dr. Currie, I am also indebted, both for his assuming charge, for a short period, of the convalescent hospital at Secundra, and for his cheerfully making over six of his vaccinators to duty in the prison hospital.

91st. *Conduct of the Hospital establishment.*—I cannot conclude my report, without bringing to your favourable notice the behaviour of my hospital establishment during this trying period. My first-class Native Doctor Kunhya Lall worked well while he remained in health, but he caught the fever at an early period, barely escaped with his life, and recovered so slowly, that the Deputy Inspector

considered him unfit to resume his former appointment. He is a boy of good intelligence, fair ability, and industrious; but the idea of responsibility crushed him, and the want of physical strength militated much against his usefulness. Of the other two Native Doctors I have nothing to remark. But it is otherwise with respect to the Compounder Luchmun. I have never had an hospital subordinate who worked better. Day and night he was to be found at his duty. However little assistance he had, he ungrudgingly and faithfully performed his work. He had, like the others, a severe attack of the fever, and subjected himself to a relapse, by returning to his hospital duties before he had completely recovered; but he escaped with his life, and is now as indefatigable as ever. I have had

Recommendation of  
Luchmun Compounder  
for reward.

occasion previously to bring to your notice this man's good services, and

I now beg that you will forward, for the sanction of Government, my recommendation that his pay may be increased, as a special case, from Rs. 6 to Rs. 10 per month.

92nd. Of the Native Doctors who joined me temporarily, no one deserves more prominent notice than the Native Doctor of the Police Battalion, Sheikh Chunnoo. During the month before he was attacked by the epidemic, his activity and industry were most conspicuous; and he contributed very much by the aid he gave me in conducting the *post-mortem* examinations, to whatever of pathological value these observations may contain.

Recommendation of re-  
ward to Native Doctor  
Sheikh Chunnoo.

I would beg to recommend that a small reward of Rs. 20, accompa-

nied by a commendatory perwanah, may be granted to this man under the sanction of the Honb'le the Lieutenant-Governor. Such recognitions of good service are the only stimuli that will induce a native to perform willingly a dangerous duty, lying out of his own proper sphere of action.

To Emam Khan, Native Doctor at the Thomason Hospital, to Native Doctor Pyaree Lall, and to the Vaccinators who gave their services in the prison hospital, acknowledgment is due that each man acted up to his ability in the performance of the extra duty thrown upon him.

93rd. *Conduct of the Jail Officials.*—I have found my Jailor, Darogah, and all the other officials, as on all former occasions, willing to assume any amount of extra work that circumstances might entail. The rapidity with which the different arrangements were carried out reflected the highest credit on the Jailor, Pundit Kesree Dass. I give him the highest praise in my power, when I say that he has quite borne out his previous character for great activity, industry and intelligence.

W. WALKER, M. D.,

*Superintendent.*

*Agra Central Prison, July, 1860.*

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# APPENDIX A.

*Analysis of Post-mortem Examinations in 104 Fever cases—1860.*

| 1.            | 2.                         | 3.                         | 4.                             | 5.             | 6.               | 7.              | 8.                 | 9.             | 10.                      | 11.                    | 12.                         | 13.                 | 14.                |
|---------------|----------------------------|----------------------------|--------------------------------|----------------|------------------|-----------------|--------------------|----------------|--------------------------|------------------------|-----------------------------|---------------------|--------------------|
| Total Number. | Scalp and brain congested. | Serous effusions in brain. | Apoplectic effusions in brain. | Lungs healthy. | Lungs congested. | Lungs engorged. | Lungs hepaticized. | Liver healthy. | Liver dark and engorged. | Liver yellow and soft. | Liver small and contracted. | Gall bladder empty. | Gall bladder full. |
| 104           | 32                         | 6                          | 8                              | 5              | 61               | 32              | 6                  | 3              | 63                       | 37                     | 1                           | 32                  | 70                 |

| 15.                    | 16.             | 17.                           | 18.                          | 19.              | 20.                | 21.                         | 22.                             | 23.                    | 24.                    | 25.                    |
|------------------------|-----------------|-------------------------------|------------------------------|------------------|--------------------|-----------------------------|---------------------------------|------------------------|------------------------|------------------------|
| Gall bladder engorged. | Spleen healthy. | Spleen engorged and enlarged. | Spleen small and contracted. | Kidneys healthy. | Kidneys congested. | Kidneys otherwise diseased. | Stomach and Duodenum congested. | Large bowel congested. | Large bowel ulcerated. | General jaundice-tint. |
| 2                      | 66              | 28                            | 10                           | 53               | 31                 | 20                          | 2                               | 37                     | 28                     | 23                     |



## APPENDIX B.

*Analysis of fatal cases under Fever, with regard to Age and Duration of Imprisonment.*

| Months.             | Period of life. |           |           |           |           |           | Duration of Imprisonment. |           |           |           |           |           |               |
|---------------------|-----------------|-----------|-----------|-----------|-----------|-----------|---------------------------|-----------|-----------|-----------|-----------|-----------|---------------|
|                     | Under 20.       |           | Under 30. |           | Under 40. |           | Under 50.                 |           | Under 60. |           | Under 70. |           | Under 1 Year. |
|                     | Under 20.       | Under 30. | Under 40. | Under 50. | Under 60. | Under 70. | Under 20.                 | Under 30. | Under 40. | Under 50. | Under 60. | Under 70. |               |
| February, 1860, ... | ...             | 0         | 6         | 1         | 2         | 0         | 7                         | 0         | 2         | 0         | 0         | 0         | 0             |
| March, " ...        | ...             | 0         | 17        | 17        | 8         | 4         | 19                        | 17        | 2         | 0         | 0         | 0         | 1             |
| April, " ...        | ...             | 2         | 41        | 25        | 17        | 15        | 47                        | 47        | 11        | 3         | 1         | 0         | 1             |
| May, " ...          | ...             | 2         | 14        | 12        | 9         | 4         | 24                        | 12        | 7         | 1         | 1         | 0         | 0             |
| June, " ...         | ...             | 0         | 6         | 5         | 1         | 2         | 6                         | 3         | 5         | 0         | 0         | 1         | 0             |
| Total, ...          | 4               | 84        | 60        | 37        | 25        | 19        | 103                       | 79        | 36        | 4         | 4         | 1         | 2             |

## APPENDIX C.

*Analysis of fatal cases under Fever, with regard to the periods at which death took place.*

| Months.       | Died within 24 hours. | Died within 1 day. | Died within 2 days. | Died within 3 days. | Died within 4 days. | Died within 5 days. | Died within 6 days. | Died within 7 days. | Died within 8 days. | Died within 9 days. | Died within 10 days. | Died over 10 days. |
|---------------|-----------------------|--------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|----------------------|--------------------|
|               |                       |                    |                     |                     |                     |                     |                     |                     |                     |                     |                      |                    |
| February, ... | 1                     | 0                  | 1                   | 1                   | 2                   | 2                   | 0                   | 1                   | 1                   | 0                   | 0                    | 1                  |
| March, ...    | 3                     | 3                  | 2                   | 7                   | 10                  | 7                   | 3                   | 5                   | 5                   | 0                   | 2                    | 8                  |
| April, ...    | 3                     | 6                  | 19                  | 9                   | 8                   | 14                  | 10                  | 9                   | 9                   | 4                   | 1                    | 26                 |
| May, ...      | 1                     | 4                  | 8                   | 5                   | 7                   | 4                   | 1                   | 1                   | 1                   | 1                   | 2                    | 12                 |
| June, ...     | 1                     | 1                  | 2                   | 0                   | 1                   | 1                   | 2                   | 0                   | 0                   | 1                   | 0                    | 5                  |
| Total, ...    | 9                     | 14                 | 32                  | 22                  | 28                  | 29                  | 14                  | 86                  | 6                   | 5                   | 5                    | 53                 |

# APPENDIX D.

*Abstract of Casualty List under Fever and its Sequela, showing the number of times fatal cases have been admitted into Hospital within the past two years.*

| Months.         | 1st Admis-<br>sion. | 2nd Admis-<br>sion. | 3rd Admis-<br>sion. | 4th Admis-<br>sion. | 5th Admis-<br>sion. | 6th Admis-<br>sion. | 7th Admis-<br>sion. | 8th Admis-<br>sion. | 9th Admis-<br>sion. | 10th Admis-<br>sion. | 11th Admis-<br>sion. | 12th Admis-<br>sion. | 13th Admis-<br>sion. | Total. |
|-----------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|----------------------|----------------------|----------------------|----------------------|--------|
| February, 1860, | 3                   | 3                   | 5                   | 3                   | 3                   | 2                   | 1                   | 2                   | 0                   | 0                    | 0                    | 0                    | 0                    | 22     |
| March, "        | 17                  | 16                  | 7                   | 5                   | 4                   | 6                   | 1                   | 0                   | 1                   | 1                    | 0                    | 1                    | 0                    | 59     |
| April, "        | 15                  | 29                  | 21                  | 14                  | 16                  | 16                  | 7                   | 3                   | 1                   | 0                    | 3                    | 0                    | 0                    | 126    |
| May, "          | 4                   | 16                  | 12                  | 12                  | 11                  | 8                   | 3                   | 4                   | 2                   | 1                    | 1                    | 0                    | 1                    | 75     |
| June, "         | 1                   | 2                   | 3                   | 2                   | 4                   | 2                   | 0                   | 3                   | 0                   | 0                    | 0                    | 1                    | 0                    | 18     |
| Total, ...      | 40                  | 66                  | 48                  | 36                  | 38                  | 34                  | 12                  | 12                  | 4                   | 2                    | 4                    | 2                    | 1                    | 299    |

# APPENDIX E.

*Analytical Table of Castes, as affected by the Fever Epidemic.*

| Months,         | Hindoos of caste not usually flesh-eaters. 361. |       | Hindoos of caste usually flesh-eaters. 1,481. |       | Moosulmans usually flesh-eaters. 360. |       | Christians. 1. |       | Bhungees, Kunjurs, &c., (doing Sweeper's work, usually flesh-eaters.) 79. |       | TOTAL, 2,292. |       |
|-----------------|-------------------------------------------------|-------|-----------------------------------------------|-------|---------------------------------------|-------|----------------|-------|---------------------------------------------------------------------------|-------|---------------|-------|
|                 | Sick.                                           | Died. | Sick.                                         | Died. | Sick.                                 | Died. | Sick.          | Died. | Sick.                                                                     | Died. | Sick.         | Died. |
|                 | 361.                                            |       | 1,481.                                        |       | 360.                                  |       | 1.             |       | 79.                                                                       |       | 2,292.        |       |
| February, 1860, | 28                                              | 2     | 173                                           | 8     | 48                                    | 1     | 0              | 0     | 22                                                                        | 3     | 271           | 14    |
| March, "        | 80                                              | 10    | 327                                           | 29    | 17                                    | 11    | 0              | 0     | 15                                                                        | 9     | 492           | 59    |
| April, "        | 130                                             | 32    | 473                                           | 69    | 91                                    | 29    | 0              | 0     | 25                                                                        | 6     | 719           | 136   |
| May, "          | 64                                              | 13    | 257                                           | 48    | 64                                    | 9     | 1              | 0     | 8                                                                         | 2     | 394           | 72    |
| June, "         | 20                                              | 3     | 106                                           | 13    | 20                                    | 0     | 0              | 0     | 2                                                                         | 2     | 148           | 18    |
| Total, ...      | 322                                             | 60    | 1,336                                         | 167   | 293                                   | 50    | 1              | 0     | 72                                                                        | 22    | 2,024         | ...   |
| Percentage, ... | 89.2                                            | 18.6  | 90.2                                          | 12.5  | 81.3                                  | 17.   | 100            | 0     | 91.1                                                                      | 30.5  | 88.6          | 14.7  |

## APPENDIX F.

*Statistics of the Fever amongst the re-captured Convicts who escaped in 1857.*

|                                         | Average strength of re-captured Convicts. | Number of sick admitted. | Number of Casualties occurred. | Percentage of             |                                           |
|-----------------------------------------|-------------------------------------------|--------------------------|--------------------------------|---------------------------|-------------------------------------------|
|                                         |                                           |                          |                                | sick to average strength. | Percentage of deaths to average strength. |
| From February to June, 1860, inclusive, | 378.2                                     | 19.3                     | 36.                            | 51.5                      | 9.7                                       |
|                                         |                                           |                          |                                |                           | 18.4                                      |

## APPENDIX G.

*Abstract of Meteorological Observations during the Epidemic of Typhoid Fever.*

| Months.         | Quantity of rain.   | Mean temperature of air. | Mean daily range of temperature. | Temperature of dew-point. | Mean temperature of evaporation. | Mean amount of cloud. | Mean amount of ozone. | Prevailing winds. | Electrical discharges low frequent. |
|-----------------|---------------------|--------------------------|----------------------------------|---------------------------|----------------------------------|-----------------------|-----------------------|-------------------|-------------------------------------|
| February, 1860, | Two slight showers. | 68.9                     | 31.                              | 52.5                      | 51.8                             | 3.5                   | 2.3                   | N. & N.W.         | 3                                   |
| March, " "      | Ditto               | 81.0                     | 36.4                             | 40.5                      | 56.9                             | 0.7                   | 0.7                   | S. W.             | 1                                   |
| April, " "      | None.               | 91.0                     | 39.1                             | 50.2                      | 66                               | 1.1                   | 6.2                   | N. W.             | 1                                   |
| May, " "        | None.               | 95.1                     | 32.8                             | 48.9                      | 66                               | 1.6                   | 0.4                   | N. W.             | 1                                   |
| June, " "       | 1 Inch.             | 97.1                     | 29.4                             | 56.2                      | 71.9                             | 3.65                  | 1.3                   | N. & W. E.        | 3                                   |

AGRA CENTRAL PRISON:

W. WALKER, M. D.

Superintendent.

July, 1860.

## APPENDIX II.

*Extract from evidence taken before the Commissioners on the Sanitary state of the Army. By DR. BALFOUR, Medical Officer to the Royal Asylum, Chelsea.*

“ WOULD it be possible to improve the soldiers’ diet, by infusing into it greater variety? I know practically it is quite possible to do so. When I was appointed to the Royal Military Asylum, I found the system of feeding the boys pretty much the same as that in the Army, but not quite so monotonous. They had abundance of food, their dinner consisting, on meat days, of eleven ounces of meat, without bone, which is more than is given to the soldiers; but they did not eat with relish, and quantities of food were taken away to the hog-tub. The boys were pale and feeble, and evidently in a very low state of health. Mr. Benjamin Phillips, a very high authority on scrofulous disease, told me that when he examined the school, while engaged in preparing his work on Scrofula for publication, he found the boys lower in point of physique than almost any school he had examined, even including those of the Work-houses. After a careful examination of the dietaries of almost all the principal schools established for children in England and Scotland, I prepared a scale of diet, which was sanctioned by the Commissioners in December, 1848, and, with a few slight modifications, is now in use at the Asylum. The chief points I kept in view were, to give a sufficient amount of food in varied and palatable forms, and without long intervals of fasting.”

“ Did the improvement in the dietary greatly increase its cost? On the contrary it saved nearly £300 a year in the feeding of the establishment. By introducing a greater variety, the boys took the whole of their food with relish, and I was able to get them into good condition, by distributing the same amount of meat over seven days that they previously had in four.”

"Were the results satisfactory? The results were far beyond my expectation. Comparing the sickness and mortality in the establishment for the ten years previous to my appointment, and for the eight years and a half that have passed since these alterations were introduced, I find that the sickness has been reduced by about one-third, and the annual mortality has fallen from 9·7 per 1,000 of the strength on the average of ten years to 4·9 per 1,000 on the average of eight years and a half. This is not entirely attributable to the change of diet, though that was a most important means. At the same time there were other improvements introduced, such as increased space in the dormitories, improved ventilation, and abundant means of cold bathing, all of which are most important elements in preserving health."

"I may mention another point with regard to health, that, on the average of the ten years, the proportion of boys reported unfit for Military service by the Surgeon was 12·4 per 1,000 annually, principally on account of scrofulous cicatrices on the neck, that would have prevented them wearing the Military Stock; and during the eight years and a half it has been reduced to 4·55 per 1,000. It is now very little more than one-third of what it used to be."

(True Extract.)

W. WALKER, M. D.,  
*Superintendent Agra Central Prison.*



# APPENDIX I.

Statement and Return of Sick Prisoners in the Hospital of the Agra Central Prison and Convalescent Gang at Secundra, from 1st February to 30th June.

| District.                | Remained in Hospital on the 31st January, 1860. | Admitted from 1st February to 30th June, 1860. | Total number of patients from 1st February to 30th June, 1860 | Discharged from 1st February to 30th June, 1860. | Died from 1st February to 30th June, 1860. | Remaining in Hospital on the 30th June, 1860. | Total. | REMARKS. |
|--------------------------|-------------------------------------------------|------------------------------------------------|---------------------------------------------------------------|--------------------------------------------------|--------------------------------------------|-----------------------------------------------|--------|----------|
| Agra Central Prison, ... | 166                                             | 4,771                                          | 4,937*                                                        | 4,428                                            | 360                                        | 149                                           | 4,937  |          |

Average daily strength of Prisoners, ... 1,995.5.

Average daily number of Sick, ... 377.4.

\* Of these 1,276 came under the head of "Debility."

*From J. C. BOW, ESQUIRE, M. D., Superintendent, Central Prison, Allahabad, to DEPUTY INSPECTOR-GENERAL OF HOSPITALS, Cawnpore Circle.—Dated Allahabad, the 26th May, 1860.*

SIR,—I have the honor to forward a short report on the fever which, as you are aware, has been the cause of the comparatively high rate of mortality which has prevailed in this jail during the past three months.

On looking back in the hospital books, I find the first death this year from fever occurred on the 3rd January; the man had been nearly a month in hospital. During the course of the disease, it is noted that typhoid symptoms ensued, and the case was so entered in the casualty report. The next death took place on the 10th, and there were four more towards the end of the month.

The following Table shows the details of admissions, deaths, &c., during the last few months:—

*Admissions and Deaths from Fever.*

| Months.         | Remaining. | Admitted. | TOTAL. | Discharged. | Died. |
|-----------------|------------|-----------|--------|-------------|-------|
| December, 1859, | 0          | 0         | 54     | 51          | 0     |
| January, 1860,  | 3          | 85        | 88     | 56          | 6     |
| February, „     | 26         | 91        | 117    | 72          | 11    |
| March, „        | 34         | 187       | 221    | 110         | 37    |
| April, „        | 74         | 168       | 242    | 134         | 44    |
|                 |            | 531       |        |             | 98    |

The total number of individuals treated was about 490, forty-one of the 531 cases being re-admissions. In addition to the deaths noted in the above Table, there were 17 men in hospital with other complaints, who were carried off by fever. The mortality has been about 20 per cent. of men treated, excluding those attacked with fever while in hospital with other diseases. The fever is generally ushered in by a fit of shivering, and lasts from two to eight days,

or even longer. Four days is the most common period. During this time, there are generally slight variations in the temperature of the body, and frequency of the pulse, but seldom sweating. In the well-pronounced cases, there is considerable heat of skin. The thermometer placed between the arm and side rose in several men to  $103^{\circ}$ , in one to  $104^{\circ}$ ; pulse frequent, 120 a very common height for it to rise to, often considerably higher, varied much in strength and fullness, according to the temperament of the patient.

Tongue covered in the middle with a thin bluish white fur; tip and edges red; generally tenderness of the epigastrium; vomiting in a few cases. Jaundice very frequent. Headache was complained of occasionally; not improbable that its existence was denied in many cases, as cupping was generally had recourse to: the same applies to the tenderness of the epigastrium. At first I found it in nearly every case; afterwards many men said they felt no pain on pressure: tension of the right rectus however they could not prevent; muscular pains in a few cases. About 25 per cent. of the patients had looseness of the bowels on admission, and the greater number of the remainder afterwards.

The motions were generally bilious; in a few cases white; and in four or five a good deal of blood was passed. Urine very highly coloured. Epistaxis occurred in about 40 cases,—sometimes during the height of the fever, and sometimes at the termination. During the sweating stage, which usually terminated the disease, the body occasionally became very cold, and pulse small: in a few cases the pulse did not fall to a healthy standard until the second day after the body had become cool. As observed in relapsing fever, it occasionally fell very low: in three or four cases it came down to 48, and in several to be full and strong.

In men who had previously suffered much from fever, as evinced by their spleens extending below the margin



of the ribs, there was very generally an absence of irritable tongue.

In by far the greater number of cases a relapse, after the patient had been quite well for from one to eight days or longer.

About 30 per cent. of the relapses took place after one day's intermission; and about 15 per cent. after intervals of two, four, five and eight days.

The second attack, like the first, generally commencing with shivering, was variable in its duration. About 40 per cent. however lasted only two days; some patients had a third, or even more relapses.

The fever occasionally, in its course, presented a quotidian type; this was most frequently the case at the commencement. I have appended extracts from the cases of several men, showing the variation in the attacks and intermissions.

Convalescence exceedingly tardy, though the men had generally good appetites.

Suppuration of the glands of the neck in two cases, and a large abscess under right pectoral muscle in one.

In about 30 cases, where the fever was prolonged, the tongue became dry, and covered with a dark brown fur, accompanied in a few instances with delirium. Sordes on the teeth in only three or four cases; several of the most unpromising of these cases recovered.

From the returns, it appears that about a third of the deaths occurred on the sixth, seventh and eighth days, the greatest number in the sixth day; a third died after being three weeks in hospital; a sixth between the 14th and 21st, and a sixth between the 8th and 14th. The number noted as dying prior to the ninth day would be somewhat lessened, if all the cases of re-admissions, after being out of hospital some time, were deducted. Several of the deaths in the first period occurred very unexpectedly; the men sunk soon after the fever left them.

*Treatment.*

On admission, if the bowels were confined, a dose of compound jalap and calomel was generally administered. Emetics were given in some cases. Diaphoretics were then used ; where great heat of skin and full pulse, quarter grain doses of tartar emetic.

In cases where the fever did not rise so high, arsenic and bark, or five-grain doses of quinine were given ; and,

in the more severe cases, quinine was given freely, when the skin became at all moist. After free administration of liquor acetatis ammoniac, partial sweats took place on the forehead, chest, or armpits. I tried "*rusole*" in several cases. In the more moderate cases it appeared to induce sweating, but in the more severe cases it had no such power. To one man I gave 30 grains every hour; copious sweating followed, but the pulse still kept up. Stimulants were freely administered when any typhoid symptoms presented themselves, or when the patient was at all low. Cupping the temples and epigastrium were resorted to, when pain or tenderness was present.

The cold douche relieved the urgency of the symptoms in several cases. In all cases cold was kept constantly applied to the head, and, on the slightest appearance of drowsiness, blisters were applied to the back of the head and nape of neck.

Quinine did not appear to have any effect in warding off the relapses; at least several men who had had large quantities did not escape.

*Hygienic measures.*—The following were the measures taken to increase the health of the prisoners.

I.—Thorough cleaning, white-washing and fumigation of the barracks.

II.—Reducing the number of men in the barracks at night, many being allowed to sleep outside.

III.—Reduction of the amount of severe labour.

IV.—Allowing the men, at out-door work across the Jumna, to have a rest from 11 o'clock till 2, and giving them their dinner between 11 and 12.

V.—An allowance of ghee to the convalescents and weakly.

#### *Contagiousness.*

With the exception of those cases in which typhoid symptoms came on, there was nothing in the appearance of the disease to lead to the belief that the fever was of

a contagious nature. I omitted to mention above that I frequently looked for, but failed to find any spots on the abdomen, or other parts of the body. No barrack was noticed as sending more patients to hospital than another. The men at the new jail across the Jumna suffered equally with those here. About a fourth of the whole number of prisoners was attacked. The only circumstance which would lead to the idea of its contagious nature, was the number of the attendants on the sick who were attacked,—in March 14, and in April 16 (exclusive of fourteen cases of relapse); this was out of a daily average of 40; but I found on enquiry at the end of April, there were then 38 attendants, none of whom had been less than a week on this duty, not one of whom had been affected.

From the nature of their work, and particularly their having to sit up for several hours every night with the sick, it might have been anticipated they would be more liable to be overcome by the fever-poison. Where the prisoners are so much mixed up, and all subject to the same atmospheric and other influences, it is difficult to determine whether a disease be contagious or not; the history of the two first fatal cases will show this.

The first man who died had been at work at the new jail; he was admitted into hospital on the 21st November, under head quotidian fever; was discharged on the 28th, and admitted again from convalescent gang on the 6th December.

The second man who died was a prisoner from Shah-jehanpore, under sentence of transportation. He was admitted with rather severe fever on the 17th December, discharged on the 27th, re-admitted on the 7th January, and died 10th.

These two men had not seen each other prior to their first admission into hospital; and it is quite impossible to say whether the subsequent attacks were perfectly independent of each other or not. If it be supposed that

they were not independent, it would be difficult to decide which man was the prime source of the contagion.

The resemblance of this fever to relapsing fever, and to the epidemic among the Eusofzais in 1853, as described by Dr. Lyell, is very striking in many respects ; and I am aware that both the Superintendents of the Agra and Meerut Jails consider the fever which has prevailed in their jails to be of a contagious nature. The Civil Surgeon of Lucknow has seen no reason to conclude that the fever in his jail is so.

There has been a great deal of fever in the districts, attended with high mortality, described by the *hakeems* as depending on bile. I have not seen a case, but have met two or three men after their recovery, in whom the eyes were still jaundiced.

In conclusion, I am happy to be able to state that the disease has nearly gone. During the last fortnight there have been only eighteen admissions (most of them mild cases) and one death.

I have, &c.,

J. C. BOW,

*Supdt. Central Prison,  
Allahabad.*

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Table showing the variations in the duration of the Attacks and Intermissions, &amp;c.

| NAMES.         | Shivering.        | Duration of first Attack. | Intermission. | Relapse. | 2nd Intermission. | 2nd Relapse. | 3rd Intermission. | 3rd Relapse. | Remarks.                                          |
|----------------|-------------------|---------------------------|---------------|----------|-------------------|--------------|-------------------|--------------|---------------------------------------------------|
| Samaroo, ...   | Shivering, ...    | 7 days                    | 2 days        | 6 days   | 10 days           | 1 day        | ...               | ...          | Eyes slight yellow; tongue irritable; discharged. |
| Dinwa, ...     | Ditto,            | 1 "                       | 1 "           | 5 "      | 4 "               | 4 "          | 5 days            | 8 days       | Jaundice. Tongue irritable; died.                 |
| Mohun, ...     | No shivering, ... | 6 "                       | 11 "          | 1 "      | 1 "               | ...          | ...               | ...          | Ditto; discharged.                                |
| Ragnath, ...   | Shivering, ...    | 2 "                       | 11 "          | 14 "     | 1 "               | ...          | ...               | ...          | Ditto; died.                                      |
| Rambuksh, ...  | No shivering, ... | 7 "                       | 1 "           | 1 "      | 1 "               | ...          | ...               | ...          | Jaundice. Ditto; died.                            |
| Taj Khan, ...  | Shivering, ...    | 4 "                       | 1 "           | 1 "      | ...               | ...          | ...               | ...          | Ditto; died.                                      |
| Sawdhee, ...   | Ditto, ...        | 7 "                       | ...           | 11 "     | ...               | ...          | ...               | ...          | Ditto; discharged.                                |
| Ranchurn, ...  | Ditto, ...        | 8 "                       | 1 "           | 4 "      | ...               | ...          | ...               | ...          | Ditto; ditto.                                     |
| Hurkishen, ... | Ditto, ...        | 4 "                       | 4 "           | 4 "      | ...               | ...          | ...               | ...          | Tongue brown in centre; red at edges; died.       |
| Keshoram, ...  | Ditto, ...        | 7 "                       | ...           | ...      | ...               | ...          | ...               | ...          | Tongue irritable; died.                           |
| Resal, ...     | Ditto, ...        | 6 "                       | 7 "           | 7 "      | ...               | ...          | ...               | ...          | Tongue furred; discharged.                        |
| Thakoree, ...  | Ditto, ...        | 3 "                       | ...           | ...      | ...               | ...          | ...               | ...          | Died.                                             |
| Abdoollah, ... | Ditto, ...        | 5 "                       | ...           | ...      | ...               | ...          | ...               | ...          | Tongue irritable; discharged.                     |
| Desraj, ...    | ...               | 8 "                       | 4 "           | 7 "      | ...               | ...          | ...               | ...          | Ditto red; discharged.                            |
| Meerjan, ...   | ...               | 2 "                       | 1 "           | 4 "      | 2 "               | 2 "          | 7 "               | 8 "          | ...                                               |
| Makun, ...     | ...               | 4 "                       | 4 "           | 11 "     | 4 "               | 3 "          | ...               | ...          | ...                                               |

J. C. ROW,  
Superintendent Central Prison.

## No. 16.

### REPORT ON THE CHOLERA WHICH PREVAILED LATELY IN THE MEERUT CENTRAL PRISON.

From DR. S. CLARK, Inspector-General of Prisons, to G. COUPER, ESQ., BART., C. B., Secretary to Government, North-Western Provinces (No. 127).—Dated Nynee Tal, the 21st September, 1861.

SIR,—I have the honor to submit, for the information of His Honor the Lieutenant-Governor, copy of Dr. J. Corbyn's Report on the Cholera which prevailed lately in the Meerut Central Prison.

2. His Honor will perceive, by the statement of admissions and deaths, that the mortality was unusually high. However, this may fairly be accounted for by the low, wretched condition many of the prisoners were reduced to, through want of food, and other privations prior to incarceration.

3. As stated in the 19th paragraph of Dr. J. Corbyn's report, the prison has been built on a low, badly-drained site, and, unfortunately, the flat nature of the ground for some considerable distance round the Jail renders perfect drainage almost impossible. However, levels have been taken, and the drainage of the prison, and its immediate neighbourhood, will be improved as much as possible; and the floor of the whole prison is being raised with earth brought from the outside, so that I am in hopes no similar flooding, such as took place during the late rains, will occur again.

I have, &c.,

S. CLARK,

*Inspector-General of Prisons,  
North-Western Provinces.*

## ( C O P Y . )

From J. C. CORBYN, Esq., M. D., Superintendent, Meerut Central Prison,  
to J. WILKIE, Esq., M. D., Deputy Inspector-General of Hospitals,  
Meerut Circle (No. 594).—Dated Meerut, the 7th September, 1861.

SIR With reference to Circulars, Nos. 30 and 31, dated Fort William, the 24th and 27th August, 1861, from the Principal Inspector-General, Medical Department, I have the honor herewith to transmit a report of the late epidemic, as it showed itself in the Meerut Central Prison.

2. It is impossible to surmise the causes which have "given rise to this individual epidemic, which has widely spread all over the country, attacking all classes, sparing neither age nor constitution, rich or poor." Its first appearing in the Meerut Jail, on the 27th of July, may in a great measure be attributable to the malaria generated by the inundation on the night of the 26th of the same month, and the high temperature afterwards.

3. It rained in torrents on the night abovementioned, flooding the Jail to the extent of three and four feet of water in several places, and causing great damage to the walls and Jail buildings.

4. On the 27th of July, the first case of cholera made its appearance in the Meerut Central Prison. On the 1st of August, it began to assume a more formidable aspect, and continued to increase in intensity until the 19th of the same month, the period of its maximum. The disease now declined slowly, and suddenly disappeared on the 25th.

5. The symptoms were as follows, and such cases only were admitted into the Cholera Hospital :—

6. *Symptoms.*—Violent vomiting and purging of watery matter; spasmodic cramp in the extremities, extending to the abdominal and muscles of the chest; a collapsed countenance; the pupil and white of the eye covered with a thick film, often a suffusion of blood and turgidity of their vessels. The eyes at length sunk in the sockets and became fixed; the extremities cold, and the pulse not to be felt; the heart's action considerably diminished.

7. *Treatment.*—The following treatment was adopted immediately a patient was admitted into Hospital with the above symptoms:—A pill composed of calomel, two grains; assafoetida, two grains; opium, two grains; camphor, three grains, was administered: if rejected, was again repeated. A large cataplasm, consisting of three-quarters country mustard one-quarter "teelee muckee," or "the blistering beetle," finely powdered and mixed with hot water, was placed over the abdomen. Friction to the extremities, with mustard oil and chillies. This produced a most favorable result in bringing about the reaction of the circulating system. A gang of prisoners was told off for this work.



8. When the patient recovered from the worst symptoms, he was removed into another ward. A few hours afterwards a dose of castor oil was given to clear the bowels, and he received a light diet.

9. The most urgent symptoms were violent thirst, and a burning heat in the bowels and stomach; and there were always frequent and lamentable calls for cold water, which was never given, but warm congee, with a little salt, was administered instead. This not only allayed thirst, but was found very refreshing and nourishing. When there was great depression and sinking, rum was given with 10 to 15 drops of turpentine. The prisoners could not retain arrack or ammonia.

10. The Australian cholera specific, and other remedies, were also tried without success. The prisoners placed much confidence in the cholera pills, as they had observed so many of their fellow-sufferers recover from their use. The pills generally checked the vomiting and purging, and, if administered an hour after the attack, were found a certain cure. The prisoners always dreaded and suspected all new remedies and experiments, and always begged for the pills.

11. *Sanitary Arrangements.*—Immediately cholera made its appearance in the Jail, all sedentary work was put a stop to, and the prisoners were employed in levelling, cutting drains, and other healthy labour outside the prison walls. They were placed in workshops and other extra buildings, to prevent any over-crowding. Three barracks outside the jail were used as cholera wards. Every precaution was taken to prevent the disease from spreading; prisoners were separated as much as possible. The wards were daily scraped, leaped, and fumigated; large fires of green wood burnt all over the jail. The prisoners taken to a running stream and bathed daily, where even their bedding, blankets and clothes were washed.

12. The alarm among the prisoners on account of the awful visitation was great, and the depression of spirits, as usually happens, considerable, as old, and even strong prisoners in the heyday of life, one after another were consigned to the grave. Every means to make the prisoners more cheerful was adopted.

13. As a precautionary measure, the allowance of vegetable and chubana was put a stop to, and extra atta, and a small quantity of "ghee," given instead.

14. Trustworthy burkundazes and prisoners, "lumberdars" of different barracks, were entrusted with cholera pills, with strict and explicit instructions to administer one to any convict attacked with cholera, and to repeat the pill if rejected.

15. At this period the surrounding country was under water; and I feel convinced, had the prisoners been removed into Camp (even had it been possible to procure serviceable tents for them), the mortality would have been fearful.



22. During the period I have had charge of the Jail, it has never been over-crowded.

23. I have the honor to annex a return, showing the number of daily admissions and deaths in the Meerut Jail Hospital.

I have, &c.,

J. C. CORBYN, *Asst.-Surgeon,*

*Supdt. Meerut Central Prison.*

DAILY REPORT OF CHOLERA CASES, PRISONERS IN THE JAIL HOSPITAL AT  
MEERUT, FROM 27TH TO 30TH AUGUST, 1861.

| Average strength of prisoners, ... 2,130  | Admitted. | Total. | Discharged. | Died. | REMARKS. |
|-------------------------------------------|-----------|--------|-------------|-------|----------|
| Average daily number of sick, 12,177      |           |        |             |       |          |
| Ratio sick per cent., ... 571             |           |        |             |       |          |
| Ratio death to strength, ... 181          |           |        |             |       |          |
| Ratio ditto to treated, ... 49            |           |        |             |       |          |
| From 27th July, to 30th August, 1861, ... | 664       | 664    | 320         | 344   |          |

MEERUT : } J. C. CORBYN, *Asst. Surgeon,*  
The 7th September, 1861. } *Supdt. Meerut Central Prison.*

From J. D. SANDFORD, Esq., Officiating Under-Secretary to Government, North-Western Provinces, to S. CLARK, Esq., M. D., Inspector-General of Prisons (No. 2805A.)  
—Dated Nynsee Tal, the 4th November, 1861.

SIR,—I am directed to acknowledge the receipt of your letter No. 127, dated 21st September last, with which you submit the copy of a report from Dr. J. Corbyn, on the Cholera which prevailed lately in the Meerut Central Prison.

2. The return shows that the mortality was very great. Of those attacked more than 50 per cent. died,—a fact to be accounted for only by the virulence of the epidemic, and the exhausted condition of many of the prisoners, it would seem, for there was no lack of professional attention, nor was there any neglect of sanitary precautions.

3. The flooding of the Jail, noticed in paragraph 3 of your letter, may have had injurious effects, and earnest

attention should be turned immediately to the prevention of a recurrence, by improving the drainage in the vicinity.

I have, &c.,

J. D. SANDFORD,

*Offg. Under-Secretary to Govt.,*

*North-Western Provinces.*

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From S. CLARK, Esq., Inspector-General of Prisons, to SIR G. COUPER, BART., C. B., Secretary to Government, North-Western Provinces, Allahabad (No. 158).—  
Dated Camp Agra, the 12th November, 1861.

SIR,—I have the honor to report, for the information of His Honor the Lieutenant-Governor, that since the cessation of the late visitation of epidemic cholera in the Meerut Central Prison, a very fatal type of low continued fever, accompanied by diarrhoea, has prevailed among the prisoners. This disease is chiefly confined to weakly men, reduced to a low state of health from cholera in the prison, or want previous to incarceration. Of the latter class there is a very large number at present in confinement.

2. On the occasion of my late visit to Meerut, I ordered all the sickly and weakly prisoners to be sent out into camp, and placed on nourishing diet best suited to their respective cases,—measures which I hope will meet with His Honor's approval.

3. I have since heard from the Superintendent that a large number of the prisoners has been hutted in the jail garden, and that a decided improvement has already taken place in their general health.

4. I receive a daily report of the state of the sick, which can be forwarded for His Honor's information if required.

I have, &c.,

S. CLARK,

*Inspector-General of Prisons,*

*North-Western Provinces.*

From J. D. SANDFORD, Esq., Officiating Under-Secretary to Government, North-Western Provinces, to S. CLARK, Esq., Inspector-General of Prisons (No. 3002 A.)—Dated Camp, the 26th November, 1861.

SIR,—I am directed to acknowledge the receipt of your letter No. 158, dated the 12th instant, and in reply to state, that the Lieutenant-Governor regrets to hear that the cholera, which lately prevailed in the Central Prison at Meerut, has been succeeded by an epidemic fever, which appears to be little less destructive.

2. The measures directed by you will, without doubt, have a beneficial effect on the health of the prisoners, and they are entirely approved.

3. There is no need to send on, for the Lieutenant-Governor's inspection, the daily reports which are received by you ; but it will be satisfactory to His Honor to know, from time to time, at short intervals, how matters are progressing.

I have, &c.,

J. D. SANDFORD,

*Offg. Under-Secretary to Government,  
North-Western Provinces.*

From S. CLARK, Esq., Inspector-General of Prisons, to SIR G. COUPER, BART., C. B., Secretary to Government, North-Western Provinces (No. 55).—Dated Camp Meerut, the 15th March, 1862.

SIR,—In continuation of my letters noted in the margin, reporting the sickly

state of the prisoners in the Meerut Central prison, I have now the honor to submit a special report by the Superintendent on the sanitary condition of the prison and its inmates, for the whole year of 1861. This report

Letters from the Inspector-General of Prisons, to Secretary to Government, North-Western Provinces, Nos. 80, 108, 127 and 158, dated 6th August, 2nd and 21st September, and 11th November, 1861, respectively.

gin, reporting the sickly state of the prisoners in the Meerut Central prison, I have now the honor to submit a special report by

the Superintendent on the sanitary condition of the prison and its inmates, for the whole year of 1861. This report

is very far from being as complete and satisfactory in points of statistical detail as could be desired, but Dr. Corbyn has been in very indifferent health himself, and, in his transmitting letter, urges this in excuse for the incompleteness of his report.

2. During the first half of the year, there was nothing in the state of the general health of the prisoners to cause any very serious alarm. There had been, during this period, 716 admissions into hospital, and 136 deaths, it is true; but this sickness and mortality had occurred chiefly amongst individuals reduced to a low state of health, through want and other privations consequent on the famine, previous to incarceration, and the general body of the prisoners appeared in fair health.

3. However, in the month of July, the admissions into hospital became more numerous, showing that, from some cause or other, the general health of the prisoners was at a lower standard, or, at all events, that they had become in some way more liable to attacks of disease. No alteration had been made in the dietary; the labor had not been excessive in any way; the prison had been kept scrupulously clean; and the space per prisoner had never been under 450 cubic feet. In fact, the attention which had always been paid to the comfort of the prisoners had been steadily observed, so that the cause of a lowered tone of general health must be looked for in some atmospheric change or other source, not, under ordinary circumstances, attributable to confinement within the walls of a prison.

4. It is proverbial that, whatever the state of the country previously may have been, all very wet seasons prove unusually unhealthy. Now this was precisely the case last year. The rains set in early, which of itself would in all probability have produced a very sickly season; but, when combined with the consequences of famine, it is not to be wondered at that constitutions already weakened by privations of various kinds should succumb

to any prevailing epidemic ; or that the class who chiefly filled this prison, many of whom had committed crime to save themselves from absolute starvation, should suffer most severely under a visitation of cholera and its sequelæ.

5. I regret I have not been able to procure a series of meteorological observations for the period under review, but there is ample evidence of several great atmospheric changes having occurred during the season. On the 31st May great damage was done to the jail buildings (reported in my letter No. 47, dated 17th June last) by a violent storm of wind and rain, accompanied by much thunder and lightning. The weather, during the greater part of the month of June and the whole of July, notwithstanding that large quantities of rain had fallen, is described as having been most sultry and oppressive. On the 26th July one of the heaviest falls of rain, *viz.*, 7'10" in nine hours, occurred that had been known for many years, which completely flooded the south half of the Prison, and to this may be attributed, in some measure, a great deal of the sickness which subsequently occurred. However, the cholera, which had been prevailing for some time among the troops and free population, made its appearance in the prison the following day ; and whatever the cause may have been, it is from the 1st of this month we must date the commencement of the excessive sickness and mortality among the prisoners.

6. From the 27th July to the 29th August there were 664 admissions and 320 deaths from cholera ; and 406 admissions and 97 deaths from diarrhœa, dysentery and debility, most probably of a choleraic nature. Again, in September, there were 294 admissions, and 114 deaths from diarrhœa, dysentery and debility, most probably the sequelæ of cholera, giving the enormous mortality of 531 from cholera and its sequelæ, in the short space of little more than two months, to say nothing of the debilitated state all those who had recovered from the immediate

attacks of cholera must have been in, and who subsequently succumbed to fever and diarrhœa.

7. With reference to the state of the prisoners just after the cholera abated, Dr. Prentice, who had medical charge of the prison for three weeks in September and October during Dr. Corbyn's absence on leave, states:—"On first visiting the jail I was struck with the attenuated condition of many of the inmates, most of them I believe received from districts where the famine had been prevailing excessively, and others had but recently recovered from that most exhausting of all diseases, cholera. The prevailing maladies at that time were intermittent and remittent fever, diarrhœa and dysentery, and by those the prisoners, naturally prone from their low state of health to any disease, were very extensively attacked; treatment on many of them had very little good effect. Exhausted by previous want or disease, they had no power to withstand a fresh attack of disease, and despite the use of *stimuli* and stimulating medicines, and the administration of nutriment, such as soup, meat, ghee, &c., a large proportion sunk. It was at one time thought that the jail itself had something to do in originating much of the sickness, and a portion of the prisoners was removed into the vacant Cavalry lines, perhaps the healthiest part of the whole station of Meerut; but the men located in the lines were as numerously attacked as those in the jail, and change of air seemed to have no effect in removing or modifying the diseases.

"The condition of the jail was, I think, all that could be desired. It was perfectly clean and well ventilated. The food issued to the prisoners was of excellent quality. Investigation will, I think, prove that previous destitution or starvation was the predisposing, and the very heavy rains the exciting, cause of the very great sickness and mortality. It is well known that, after a very rainy season, certain maladies are so prevalent as almost to seem epi-



mic. In my own regiment, composed of picked soldiers; nearly one-third of the men was admitted into hospital in September and October with ague, generally of a low type; and so much did fever prevail among the civil population, that many private families were put to the greatest inconvenience, on account of all their domestic servants being laid up with fever and other diseases.

"If disease, then, should have been so rife amongst the well fed and healthy, it is not to be wondered at that men, reduced by destitution or recent disease, should have suffered still more severely, and that a very large portion should have fallen victims to the complaints which even men, previously strong and in good health, bore up against with difficulty."

8. The Lieutenant-Governor is already aware that everything that could be devised was done to stay the progress of the sickness, but without much effect, until it had carried off upwards of one-half the inmates of the prison. Immediately the cholera made its appearance, orders were issued to all Magistrates in the Meerut Division to discontinue sending prisoners to the Central Prison. Numbers were released on three different occasions; on the recommendation of Medical Committees assembled for the purpose; others were sent out of the prison and located, some in the old Cavalry lines, and some in tents and temporary huts in the jail garden and its vicinity, and 98 were sent to Boolundshuhur for change of air; the dietary carefully attended to, and all extras that were deemed necessary were freely allowed. Extra blankets and clothing were also allowed; the barracks were all in turn regularly fumigated and cleansed, and washed with newly-slacked lime, and large wood-fires burnt in them with the view of thoroughly drying them, and destroying any damp and miasma that might be floating in the atmosphere; and all labour was reduced to simply sufficient to keep the mind a little employed; but nothing seemed to rouse the men from the

exhausted state they had been brought to by previous want and disease.

9. Of the 98 men who were sent to Boolundshuhur 19 died,—viz., 16 from dysentery and 3 from fever. With reference to this party the Civil Surgeon states:—  
“The number originally despatched from Meerut was 98: of these one died on the road, and 25 were admitted into hospital immediately on arrival.

“I consider that there was not that immediate change for the better that might have been expected from the transfer of the prisoners to Boolundshuhur, although great care was taken that the food should be suitable and varied; the wards and hospital commodious, clean, and well ventilated at night; and that all should pass the greater portion of the day in the open air. The disease has not shown any infectious tendency here.

10. The parties encamped outside the prison at this place did not derive the benefit that was anticipated. In fact the sickness and mortality rather increased from the change, and it was deemed advisable to return the greater portion to their former quarters.

11. It would appear, from the experience of the past year, that camp life in tents is not at all well suited for natives in a debilitated state of health, particularly after seasons of heavy rain, when the whole country is completely saturated with water, and I therefore consider that there should be a sanitarium consisting of a few permanent barracks, in an elevated healthy situation, in connection with this prison, where, in times of great sickness, at least one-third of the prisoners could be removed to on a moment's notice. In fact something of the kind is very much wanted for ordinary occasions, for the purpose of affording change of air to convalescents and weakly, a considerable number of whom must always be at every Central Prison; and should His Honor approve, I will be prepared to sub-

mit a scheme for the arrangement and management of such an institution.

12. But to return to the immediate subject of my report. There does not appear a doubt that the predisposing cause of the excessive sickness and mortality was the famine, aggravated by the unusually wet season, and the cholera which prevailed all over the country. All medical men who saw anything of the prisoners at the time in question, or were consulted regarding their condition, were agreed on these points. Of the 1,449 deaths which occurred during the year from all causes, 1,114 were individuals imprisoned during the height of the famine; and of the deaths which occurred among those imprisoned prior to this time, 117 were from cholera, without reference to those who died from the sequelæ of that disease.

13. Independent of my own opinion, and that of other medical men consulted from time to time by the Superintendent, I considered it advisable to get further advice to bear on the matter, and begged the Deputy Inspector-General of Hospitals to assemble a Committee of Medical Officers to inquire officially into the state of the prison and condition of the inmates, with the view of ascertaining if anything new could be elicited regarding the nature and cause of the excessive sickness, and the following is the result of their investigations:—

14. “From inquiries we have instituted, and observations personally made, we are of opinion that the chief cause of the mortality and sickness—arising from bowel complaints, fever and cholera—which prevailed among the prisoners in the Meerut jail during the months of August and September, were referable to the weak, sickly and emaciated condition of prisoners received from the famine tract and Terai districts, and in October and November, from bowel complaints, and fevers in those debilitated by attacks of cholera and choleraic diarrhœa in July and August.

"We also consider it necessary that the air of the hospital should be heated by fires during the winter months, and those patients labouring under bowel complaints and typhoid symptoms should be allowed a liberal diet adapted to their impaired assimilative powers.

"There does not appear to be any contagious principle in operation. Owing to the extreme debility and emaciation of the generality of patients in hospital, who require warmth and a nutritious diet, it does not appear advisable to send them into camp."

15. Annexed are statements showing the age, diseases, number treated, number of deaths, per-centage of sick and deaths to average strength and treated, and duration of imprisonment of all those who died during the year.

16. In conclusion, I beg to state that the floor of the prison has been raised, the drainage outside has been much improved, and the sum sanctioned in the Budget for 1862-63 will be sufficient to complete a regular system of drainage of the prison and ground in the immediate vicinity, which will prevent all possibility of flooding from rain-falls in future.

I have, &c.,

S. CLARK,

Insp.-Genl. of Prisons, N. W. P.

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#### SUBSTANCE OF A SPECIAL REPORT ON THE SANITARY CONDITION OF THE MEEHUT CENTRAL PRISON, DURING THE YEAR 1861.

In reviewing the sanitary state of an institution such as a jail, where the prisoners are received from many different localities, it is necessary to glance at the condition of the inhabitants of the surrounding country whence the inmates have been drawn.

2. The crops of 1859, in this part of the country, were by no means good, and those of 1860 failed almost altogether, so that, early in the latter year, food was at famine prices, and by the beginning of 1861, the distress, particularly among the poorer classes, was very severe indeed, and many committed crime to save themselves from absolute starvation;

and the consequence was, that the jail soon became filled with poor, attenuated, half-starved creatures, who had no stamina to withstand attacks of the most ordinary complaints, much less the shock of an exhausting disease like cholera.

3. The cholera approached this place from the Dehli district, travelling apparently in a northerly direction. It appeared at Ghazecabad on the 8th, and here on the 30th June; and from this time it prevailed with more or less severity till the end of August.

4. The first cases occurred in the Military Cantonments situated to the north of the prison, where it raged with great violence during the whole of July, and greater part of August. Travelling in a south-easterly direction, it did not reach the prison till the 27th of the former month, taking about 28 days to get over two miles. Its approach was so very slow that I began to hope the jail would escape it altogether, and I am inclined to think that, had it not been for the heavy fall of rain (reported in my letter No. 566, dated 31st July last,) which flooded the prison on the 26th July, the prisoners might have escaped altogether. However, the disease appeared within the prison on the 27th July, the day after the heavy fall of rain alluded to above, and, as shown in my report on the disease, submitted to the Deputy Inspector-General of Hospitals, copy of which was forwarded to you with my letter No. 595, dated 8th September last, 377 individuals were carried off in the short space of little more than a month.

5. It has already been shown that the great body of the prisoners in confinement at the beginning of the year had been received from the famine tracts, and were consequently in a very low state of general health at the time of admission into prison, which, added to the debilitating effects of attacks of cholera and choleraic diarrhoea, and the depression consequent on the severe trials they had just passed through, rendered them particularly prone to be attacked by diarrhoea, dysentery and fever, which almost invariably follow in the wake of cholera, and the consequence was, that great numbers of those who escaped an attack of cholera, or recovered from the disease, fell victims to the former complaints in September, October and November.

6. Everything that could be thought of was done to improve the general health and condition of the prisoners. The diet was carefully selected, so as to meet the weakened digestive powers of the different classes; numbers were released on the recommendation of Medical Committees appointed for the purpose; others were sent outside the prison into camp, the old Cavalry lines, and temporary huts in the jail garden; and by the occupation of some of the workshops and godowns as dwelling-places, the sick and weakly had ample space, and were kept entirely separate from

those in health. All hard labour was discontinued, the only employment being a little light work, just sufficient to divert and occupy the mind; the conservancy of the prison was carefully attended to; the barracks were all regularly cleansed and washed with newly-slacked lime, and large wood-fires were burnt in them for the purpose of thoroughly drying and ventilating them. Extra clothing and blankets were supplied as occasion required, and, in short, everything that could be devised was done to relieve the sickness and arrest its progress.

7. During these trying times, I had the benefit of the able advice and suggestions of Doctor Wilkie, Deputy Inspector-General of Hospitals, who visited the prison very frequently, and always appeared satisfied with the different arrangements. I have also to express my thanks to several of the other Medical Officers at Meerut, who visited the prison and assisted me with their advice.

8. The following observations were recorded by a Committee of Medical Officers appointed to enquire into the cause of the excessive sickness and mortality prevailing among the prisoners:—"From the inquiries we have instituted, and observations personally made, we are of opinion that the chief causes of the mortality and sickness—arising from bowel complaints, fever and cholera—which prevailed among the prisoners in the Meerut jail during the months of August and September, were referable to the weak, sickly, and emaciated condition of prisoners received from the famine tracts and Terai districts; and in October and November, from bowel complaints and fevers in those debilitated by attacks of cholera and choleraic diarrhoea in July and August.

"We also consider it necessary that the air of the hospital should be heated by fires during the winter months, and that those patients labouring under bowel complaints and typhoid symptoms should be allowed a liberal diet, adapted to their impaired assimilative powers.

"There does not appear to be any contagious principle in operation. Owing to the extreme debility and emaciation of the generality of the patients in hospital, who require warmth and a nutritious diet, it does not appear advisable to send them into camp."

J. C. CORBYN, *Assistant-Surgeon,*

*Superintendent, Meerut Central Prison.*

MEERUT CENTRAL PRISON OFFICE: }

*The 15th January, 1862.*

# 416 SELECTIONS FROM THE RECORDS OF GOVERNMENT.

*Statistical Table of cases of Cholera treated and died during the months of July and August, 1861.*

| Average total strength of all classes in jail during July and August. | Total number treated. | Total number of deaths. | Per-centage of treated to average strength. | Per-centage of deaths to average strength. | Per-centage of deaths to treated. |
|-----------------------------------------------------------------------|-----------------------|-------------------------|---------------------------------------------|--------------------------------------------|-----------------------------------|
| 2,424                                                                 | 664                   | 320                     | 27.39                                       | 13.20                                      | 48.19                             |

*Statistical Table of cases, exclusive of Cholera, treated and died during the year 1861.*

| Average Total strength of all classes in jail during the year. | Total number treated. | Total number of deaths. | Per-centage of treated to average strength. | Per-centage of deaths to average strength. | Per-centage of deaths to treated. |
|----------------------------------------------------------------|-----------------------|-------------------------|---------------------------------------------|--------------------------------------------|-----------------------------------|
| 2,188                                                          | 2,693                 | 1,129                   | 123.08                                      | 51.60                                      | 41.92                             |

*Statistical Table of all diseases treated, and deaths during the year 1861.*

| Average total strength of all classes in Jail during the year. | Total number treated. | Total number of deaths. | Per-centage of treated to average strength. | Per-centage of deaths to average strength. | Per-centage of deaths to treated. |
|----------------------------------------------------------------|-----------------------|-------------------------|---------------------------------------------|--------------------------------------------|-----------------------------------|
| 2,188                                                          | 3,357                 | 1,449                   | 153.43                                      | 66.22                                      | 43.16                             |

S. CLARK,  
Inspector-General of Prisons, N. W. P.

STATEMENT of Deaths, showing the age and diseases from which the Prisoners died, in or out of the Hospital at Meerut, during the year 1861.

|                         | AGE.           |                |                |                |                |                |                |                |                |                |                |                | DISEASES.      |                |                |                |                 |        |        |            | Executed during the year. |            |         |                   |                 |                 |          |                 |        |     |
|-------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-----------------|--------|--------|------------|---------------------------|------------|---------|-------------------|-----------------|-----------------|----------|-----------------|--------|-----|
|                         | From 15 to 20. | From 21 to 25. | From 26 to 30. | From 31 to 35. | From 36 to 40. | From 41 to 45. | From 46 to 50. | From 51 to 55. | From 56 to 60. | From 61 to 65. | From 66 to 70. | From 71 to 75. | From 76 to 80. | From 81 to 85. | From 86 to 90. | From 91 to 95. | From 96 to 100. | Total. | Fever. | Dysentery. |                           | Diarrhoea. | Scurvy. | Disease of Brain. | Ditto of Lungs. | Ditto of Liver. | Cholera. | Other Diseases. | Total. |     |
| Criminal Prisoners,     | 135            | 216            | 249            | 195            | 230            | 71             | 124            | 20             | 77             | 24             | 32             | 16             | 16             | 14             | 6              | 1              | 1               | 1427   | 476    | 84         | 324                       | ...        | 3       | 11                | ...             | 377             | 152      | 1427            | ...    |     |
| Civil Prisoners,        | ...            | ...            | ...            | ...            | ...            | ...            | ...            | ...            | ...            | ...            | ...            | ...            | ...            | ...            | ...            | ...            | ...             | ...    | ...    | ...        | ...                       | ...        | ...     | ...               | ...             | ...             | ...      | ...             |        | ... |
| Revenue Prisoners       | ...            | ...            | ...            | ...            | ...            | ...            | ...            | ...            | ...            | ...            | ...            | ...            | ...            | ...            | ...            | ...            | ...             | ...    | ...    | ...        | ...                       | ...        | ...     | ...               | ...             | ...             | ...      | ...             |        | ... |
| Prisoners under trial,  | ...            | ...            | ...            | ...            | ...            | ...            | ...            | ...            | ...            | ...            | ...            | ...            | ...            | ...            | ...            | ...            | ...             | ...    | ...    | ...        | ...                       | ...        | ...     | ...               | ...             | ...             | ...      | ...             |        | ... |
| Died at Boolind-shuhur, | ...            | ...            | ...            | ...            | ...            | ...            | ...            | ...            | ...            | ...            | ...            | ...            | ...            | ...            | ...            | ...            | ...             | ...    | ...    | ...        | ...                       | ...        | ...     | ...               | ...             | ...             | ...      | ...             |        | ... |
| TOTAL, ...              | 135            | 216            | 249            | 195            | 231            | 71             | 124            | 21             | 78             | 24             | 32             | 16             | 16             | 14             | 6              | 1              | 1               | 1430   | 480    | 100        | 326                       | ...        | ...     | 311               | ...             | 377             | 152      | 1449            |        |     |

MEERUT CENTRAL PRISON OFFICE: }  
 J. C. CORBYN, Asst.-Surgeon,  
 Superintendent, Meerut Central Prison.  
 The 1st January, 1862.



From SIR G. COUPER, BART., C. B., Secretary to Government, North-Western Provinces, to S. CLARK, Esq., M. D., Inspector-General of Prisons (No. 885 A.)—Dated Nynce Tal, the 8th April, 1862.

SIR,—I am directed to acknowledge the receipt of your letter No. 55, dated 15th ultimo, with which you submit a report on the sanitary condition of the Central Prison at Meerut, for the year 1861.

2. The Lieutenant-Governor has read this report with attention. It is impossible not to deplore the extraordinary mortality which is shown to have occurred during the year 1861 among the inmates of the Meerut Central Prison; but the united testimony of all the Medical Officers consulted satisfactorily shows it to have been due almost entirely to the emaciated and debilitated condition in which the prisoners, suffering from the drought and famine of 1860-61, were received in the prison, to their consequent inability to withstand the attack of cholera, which entered the prison on 27th July, 1861, and its sequelæ, the fever, dysentery and diarrhœa, which were aggravated by the unusually wet season of 1861.

3. Every Officer consulted, or in any way connected with the prison, has borne testimony to its scrupulous cleanliness; to the sufficiency of its accommodation; to the excellent quality of the food; and to the assiduous care given to the internal management of the institution. No blame can attach to the Departmental Officers, or to the Government, who readily accepted and sanctioned the recommendation submitted for the release of prisoners.

4. Nor does it appear that the site of the jail, though somewhat low, is such as to have been even the pre-disposing cause of the excessive mortality. It may possibly have aggravated the result, and it is satisfactory, therefore, to know that attention has been given to the drainage of the neighbourhood, and that nothing will be wanting in this respect.

5. Without committing himself to the proposal set forth in paragraph 11 of your report, the Lieutenant-Governor will await the submission of your scheme for a sanitarium, and will give to it his best consideration when received.

6. Your letters, Nos. 127 and 158, dated respectively the 21st September and 12th November, 1861, with their enclosure, and the replies of Government thereto, and the present Report, with its enclosure from Dr. Corbyn, the Superintendent of the Central Prison, and this reply, will be printed in a number of the Selections from the Records of Government, North-Western Provinces.

I have, &c.,

G. COUPER,

*Secretary to Government,*

*North-Western Provinces.*

**No. 17.****REPORT ON THE VACCINE OPERATIONS IN THE  
AGRA DIVISION, FOR 1861-62.**

BY A. CHRISTISON, M. D.,

*Superintendent of Vaccination, Agra Division.*

THE Vaccine Operations in the Agra Division for 1861-62 were commenced in the beginning of November, 1861, and closed at the end of March, 1862.

The number of vaccinators was 26, with at first two native superintendents, but afterwards three.

Only eight of the vaccinators were men of the previous year; the rest were new to the work, and, before very long, it became necessary to dismiss five of their number on account of inefficiency.

Thus, considering the inaccuracies of former years, point-

\* Letter to the Secretary to Government, North-Western Provinces, No. 1, dated 24th October, 1861.

ed out by me in a previous communication,\* the

difficulties this year with a nearly quite new establishment, the strength of which soon fell below the proper number, and the inexperience of the Native Superintendents, I trust it will not be a matter of surprise that the total number vaccinated have this year been few in comparison with other seasons.

It is very difficult to secure accuracy in the returns, but I believe this has been attained for the present year; because, besides my personal inspections, I have strongly impressed on the vaccinators that not mere numbers are required, but rather good vaccine in the cases actually operated on.

The vaccinators have in other years been under the impression that large numbers in their returns would gain for them approval and advancement; and they became unscrupulous in this respect, competing with each other for the highest numbers, and falsifying their registers.

The districts visited this year have been Agra, Muthra and Etawah, and also the Bhurtpore territory.

An endeavour has been made to leave no village unvisited in the pergunnahs the vaccinators were sent to, so that the work might be thoroughly done, and an interval of several years be allowed to elapse before a second visit.

Only a small portion of Etawah was visited, because, as above stated, it was considered desirable that the principal work should be done in the Agra and Muthra zillahs.

The two vaccinators in the Bhurtpore territory were very successful, principally under the direction of Assistant Surgeon Mott, at whose request I sent them.

The character of the vaccine has, upon the whole, been good, and the virus current at Agra was approved of by Dr. Bruce, Inspector-General of Hospitals, at his inspection visit to Agra.

I am not quite satisfied that the vaccine equals that of other years, but this may be owing to the inexperience of the vaccinators.

Thus, while one man under supervision would be working with good vaccine, another, not under observation, might be extending inferior virus.

The vaccine was started in November, partly from crusts sent by Mr. Pearson, Superintendent of Vaccine in Rohilkund and the Hills, and partly from lymph in capillary tubes received from Scotland.

## I.

*Total Vaccinations for each Month and District.  
1861-62.*

| MONTHS.             | Agra.  | Muthra. | Etawah. | Bhurtpore. | TOTAL. |
|---------------------|--------|---------|---------|------------|--------|
| November, 1861, ... | 773    | "       | "       | "          | 773    |
| December, " ...     | 8,943  | "       | "       | "          | 8,943  |
| January, 1862, ...  | 5,346  | 4,537   | "       | 684        | 10,567 |
| February, " ...     | "      | 7,044   | 1,066   | 1,254      | 9,364  |
| March, " ...        | "      | 4,606   | 1,542   | 842        | 6,990  |
| TOTAL, ...          | 15,062 | 16,187  | 2,608   | 2,780      | 36,637 |

## II.

*Result of Vaccination in the Agra zillah.*

| MONTHS.             | Success-<br>ful. | Unsuc-<br>cessful. | Doubt-<br>ful. | Un-<br>known. | TOTAL. |
|---------------------|------------------|--------------------|----------------|---------------|--------|
| November, 1861, ... | 286              | 390                | 37             | 60            | 773    |
| December, ,, ...    | 4,535            | 2,418              | 601            | 1,389         | 8,943  |
| January, 1862, ...  | 2,267            | 907                | 164            | 2,008         | 5,346  |
| February, ,, ...    | "                | "                  | "              | "             | "      |
| March, ,, ...       | "                | "                  | "              | "             | "      |
| TOTAL, ...          | 7,088            | 3,715              | 802            | 3,457         | 15,062 |

## III.

*Result of Vaccination in the Muthra zillah.*

| MONTHS.             | Success-<br>ful. | Unsuc-<br>cessful. | Doubt-<br>ful. | Un-<br>known. | TOTAL. |
|---------------------|------------------|--------------------|----------------|---------------|--------|
| November, 1861, ... | "                | "                  | "              | "             | "      |
| December, ,, ...    | "                | "                  | "              | "             | "      |
| January, 1862, ...  | 1,741            | 884                | 388            | 1,524         | 4,537  |
| February, ,, ...    | 3,277            | 1,304              | 378            | 2,085         | 7,044  |
| March, ,, ...       | 2,116            | 877                | 168            | 1,415         | 4,606  |
| TOTAL, ...          | 7,134            | 3,065              | 934            | 5,051         | 16,187 |

## IV.

*Result of Vaccination in the Etawah zillah.*

| MONTHS.             | Success-<br>ful. | Unsuc-<br>cessful. | Doubt-<br>ful. | Un-<br>known. | TOTAL. |
|---------------------|------------------|--------------------|----------------|---------------|--------|
| November, 1861, ... | "                | "                  | "              | "             | "      |
| December, ,, ...    | "                | "                  | "              | "             | "      |
| January, 1862, ...  | "                | "                  | "              | "             | "      |
| February, ,, ...    | 372              | 294                | 44             | 356           | 1,066  |
| March, ,, ...       | 796              | 288                | 77             | 381           | 1,542  |
| TOTAL, ...          | 1,168            | 582                | 121            | 737           | 2,608  |

## V.

*Result of Vaccination in the Bhurtpore territory.*

| MONTHS.                | Success-ful. | Unsuc-cessful | Doubt-ful. | Un-known. | TOTAL. |
|------------------------|--------------|---------------|------------|-----------|--------|
| November, 1861, ... .. | "            | "             | "          | "         | "      |
| December, ,, ... ..    | "            | "             | "          | "         | "      |
| January, 1862, ... ..  | 398          | 126           | 1          | 159       | 684    |
| February, ,, ... ..    | 773          | 235           | 6          | 240       | 1,254  |
| March, ,, ... ..       | 594          | 136           | 0          | 112       | 842    |
| TOTAL, ...             | 1,765        | 497           | 7          | 511       | 2,780  |

## VI.

*Total result in the Agra Division.*

| MONTHS.                | Success-ful. | Unsuc-cessful. | Doubt-ful. | Un-known. | TOTAL. |
|------------------------|--------------|----------------|------------|-----------|--------|
| November, 1861, ... .. | 286          | 390            | 37         | 60        | 773    |
| December, ,, ... ..    | 4,535        | 2,418          | 601        | 1,389     | 8,943  |
| January, 1862, ... ..  | 4,406        | 1,917          | 553        | 3,691     | 10,567 |
| February, ,, ... ..    | 4,422        | 1,833          | 423        | 2,631     | 9,309  |
| March, ,, ... ..       | 3,566        | 1,301          | 245        | 1,938     | 6,990  |
| TOTAL, ...             | 17,155       | 7,859          | 1,864      | 9,769     | 36,637 |

## VII.

*Sizes of those Vaccinated.*

| Males. | Females. | TOTAL. |
|--------|----------|--------|
| 17,172 | 19,465   | 36,637 |

## VIII.

*Ages of those Vaccinated.*

| 6 Months. | 6 Months to 1 Year. | 1 Year to 2 Years. | 2 Years to 3 Years. | 3 Years to 4 Years. | 4 Years to 5 Years. | 5 Years to 10 Years. | Total. |
|-----------|---------------------|--------------------|---------------------|---------------------|---------------------|----------------------|--------|
| 3,223     | 7,259               | 8,528              | 5,212               | 4,728               | 2,725               | 4,962                | 36,637 |

## IX.

*Castes or Occupations of those Vaccinated.*

|                |       |                |     |                                     |     |
|----------------|-------|----------------|-----|-------------------------------------|-----|
| Chumar, ...    | 9,383 | Naye, ...      | 546 | Durzee, ...                         | 162 |
| Thakoor, ...   | 5,300 | Tailec, ...    | 480 | Kayet, ...                          | 148 |
| Brahmin, ...   | 3,680 | Goojur, ...    | 394 | Jogee, ...                          | 142 |
| Jat, ...       | 3,072 | Dhobee, ...    | 378 | Chirimar, ...                       | 110 |
| Mahomedan, ... | 2,138 | Nudaff, ...    | 324 | Dhanook, ...                        | 94  |
| Bukkal, ...    | 1,719 | Khutick, ...   | 288 | Cheepee, ...                        | 91  |
| Kolee, ...     | 1,390 | Rajpoot, ...   | 280 | Bairagee, ...                       | 91  |
| Kahar, ...     | 934   | Lohar, ...     | 259 | Bhât, ...                           | 77  |
| Kachee, ...    | 871   | Mullah, ...    | 252 | Munhar, ...                         | 66  |
| Gudurya, ...   | 842   | Soonar, ...    | 245 | Mehtur, ...                         | 61  |
| Koombar, ...   | 728   | Christian, ... | 179 | Meena, ...                          | 51  |
| Lodha, ...     | 663   | Mollee, ...    | 176 | Various Castes in small number, ... | 196 |
| Nujjar, ...    | 652   | Bhurjee, ...   | 175 |                                     |     |

In the foregoing returns it will be seen that the columns for unknown cases are large. There are several reasons for this.

The vaccinator may find the family he wishes to visit has left the village for a time, or, as is very common, he cannot persuade the people to consent to an inspection of the result; or he himself is moved to another district, and time, which is very short at the best for successful vaccination, would be lost were he to return to inspect.

Many of the unknown cases were no doubt successful, and if this could have been ascertained, the numbers in the column for successful cases would have presented a better appearance.

An attempt has been made to trace the results of vaccination in previous years, and 255 children, whose vaccine marks had disappeared, have been re-vaccinated, 134 of these successfully; but it has not been easy to find such cases, as there were no village registers to refer to, and the people were unwilling to give information.

There is one most important point on which I believe much fallacy exists, and that is, the proportion of successful cases.

It has been before stated by the late Dr. Currie and myself that there are many unsuccessful cases, owing to the inexperience or carelessness of the vaccinators, and to the conduct of the persons in charge of the children operated on, or of the children themselves.

The better classes will attend to the instructions given them to carefully protect the vaccine vesicle, but the lower orders are too apt to scratch and destroy the vesicle as soon as it is formed. Very often the skin is so hard from exposure to the weather, that the virus takes no effect.

This year I consider the number of successful cases below the average, and this is due to the inexperience of certain of the vaccinators.

I believe that 60 or 70 per cent. of successful cases is all that can be expected in present circumstances.

I have seen other returns, in which the success is given as 90 per cent., but this does not accord with my observation. It would require a careful selection of children, willing co-operation of the parents, and very skilful vaccinators to attain such a result.

That there should be so many unsuccessful cases is unfortunate, because the people do not understand that they are thus not protected from small-pox: they in general believe that the simple insertion or scratching of the lan-



cet is sufficient, and should small-pox occur in such a case, their faith in the operation is shaken.

I have this year made trial of the vaccine needle-instrument for scratching the virus into the skin. It produces a very good and large vesicle, and I would therefore always use it; but as the children scratch the vesicle when formed, I found the arm not unfrequently ulcerated in this case, owing to the size of the surface injured.

I also found a tendency to ulceration with this instrument when the weather was becoming hot. It therefore appears to be best suited for the coldest months.

The vaccinators themselves always use the ordinary bleeding lancet in preference, unless prevented. They will even use the round lancet end of the needle-instrument, in preference to the needle points. They do this, because it is easier to insert the lancet under the often hardened skin than to scratch through it with the needles.

I endeavour to make them use both instruments in the cases most suitable for each.

I have brought into use capillary tubes for conveying fluid vaccine on a larger scale than formerly, as there is no doubt of their efficacy and great convenience in transmitting virus from one place to another.

I wished thus to obviate the necessity of taking children from one village to another for the sake of the fresh lymph, as that is an inconvenience to the people, and not unfrequently cannot be done.

I have to a certain extent succeeded; but the manipulations required being delicate, only a few vaccinators can as yet fill the tubes properly. They will require further instruction next season.

I do not think any other form of vaccine is necessary, except crnets and capillary tubes of fluid virus.

AGRA :  
The 21st May, 1862.

A. CHRISTISON, M. D.,  
Superintendent of Vaccination,  
Agra Division.

**No. 18.****REPORT ON VACCINE OPERATIONS IN THE AGRA  
DIVISION, DURING 1862-63.**

BY DR. A. CHRISTISON,

*Superintendent of Vaccination, Agra Division.*

THE vaccine operations in the Agra Division for 1862-63 were, as usual, commenced early in November, and completed at the end of March; and the usual establishment of three native superintendents and twenty-six vaccinators was employed in the work.

The total result for 1862-63 is somewhat less than for the previous year, the cause of which has been, that comparatively few cases were vaccinated in November and December, 1862, owing to the vaccine not taking effect till later than it generally does. In other respects the results have been better than last year, for the numbers in January, February and March, when the vaccinators were in full occupation, exceed those of the previous year by 1,550 cases.

The average number of successful cases was 67 per cent. of those whose results were ascertained.

This average, though it is kept down by the difficulties with the villagers themselves, arising from exposure of the body to the sun, injury to the vaccine vesicle by scratching, &c., depends to a certain degree on the skill of the vaccinators. It might be improved if certain of the men would work better, but as all receive the same pay, it is not easy to induce the less active to exert themselves.

There is one subject on which a few remarks may be made,—viz., the use of capillary glass tubes for collecting and preserving fluid vaccine.

I have used these tubes since 1859. In the first place, as the means of conveying virus from England required for use here; afterwards, for transmitting virus in this

country to those officers who required it; and latterly, they have been supplied to the vaccinators in sufficient quantity to enable them to fill tubes for themselves, and thus convey the virus from village to village; and this obviates the difficulty of getting the people to take their children with fresh virus on the arm to other villages, which they much object to.

The filling of the tubes is a delicate operation, but one that the vaccinators, when properly instructed and willing to work, can manage perfectly well. The fluid thus hermetically sealed can be kept for a long time, and the high temperature of the hot season does not seem to destroy its activity.

I hope next year, by means of a number of tubes collected in the past cold season, and now kept in a cool place, to be enabled to establish vaccination at the commencement of next cold weather on a more extended scale than has hitherto been possible.

A. CHRISTISON, M. D.,

Supdt. of Vaccination, Agra Division.

AGRA :

*The 27th May, 1863.* }



**No. 19.****REPORT ON VACCINE OPERATIONS IN ROHILCUND,  
KUMAON AND GURHWAL, DURING 1862-63.**By DR. F. PEARSON, *Superintendent.*

IN submitting my Vaccine Report for 1862-63, it will be unnecessary for me to enter into all the details of the past year's operations, inasmuch as the work of one season differs in interest so little from those preceding it, that I would desire to avoid needless repetition, confining myself to such new matter only as may seem to call for observation, more especially as my Reports for 1860-61 and 1861-62 were published in the Selections from the Records of Government, North-Western Provinces, Nos. XXXV. and XXXVII., and form the basis of the late Lieutenant-Governor's proposal for a new scheme of vaccination for the North-Western Provinces, as recorded in No. XXXVIII. of the Selections above referred to.

2. The numbers and results of those vaccinated in *Rohilcund* during the past season, as compared with those of the preceding year, present a satisfactory contrast:—

**ROHILCUND.**

| Year.    | Successful. | Unsuccessful. | Doubtful. | Unknown. | TOTAL. |
|----------|-------------|---------------|-----------|----------|--------|
| 1861-62, | 17,761      | 7,274         | 2,969     | 3,859    | 31,863 |
| 1862-63, | 21,564      | 7,405         | 3,551     | 3,412    | 35,932 |

showing not only an increase in operations, but what is a point of infinitely greater importance, a higher per-centage of successful cases; for it is to the latter that we must ever look as the means of overcoming the apathy of the

masses in accepting the proffered remedy,—viz., by convincing them of its efficacy: that accomplished, all difficulties in the spread of vaccination will have vanished. I have no hesitation in saying that belief in its power for good is gaining ground, as not only shown by the increased numbers availing themselves of it, but by the fact that it is now no uncommon occurrence for the higher class of educated natives to send and ask for the services of the vaccinators for their families, and to remunerate them for the work rendered. That small-pox can be as effectually eradicated in India as in England by vaccination I have no doubt. It is a mere question of expense; and when once the people have arrived at the point of appreciating and seeking the remedy, the outlay of Government would annually become a decreasing one, for then the native private practitioner would find the vaccine profession a profitable one, and follow it. This must be our ultimate aim.

3. The returns given below will show what has been accomplished during the past year in Kumaon and Gurhwal, as compared with the previous season.

#### KUMAON AND GURHWAL.

| Year.    | Successful. | Unsuccessful. | Doubtful. | Unknown. | TOTAL. |
|----------|-------------|---------------|-----------|----------|--------|
| 1861-62, | 12,907      | 1,447         | 692       | 331      | 15,377 |
| 1862-63, | 12,004      | 1,202         | 700       | 471      | 14,377 |

exhibiting a decrease to the extent of one thousand in the numbers done,—the fact being that, in Gurhwal, the subjects for Vaccination are annually becoming scarcer, it being now difficult to find any one over the age of three years unprotected. Next season I propose withdrawing one of the vaccinators from Gurhwal, and transferring

him to Kumaon, where the field for operations is greater. In Gurhwal small-pox is now practically extinct. In a few years I hope the same may be said of Kumaon, as soon as vaccination has been carried out there on a similar scale.

4. The supplies of vaccine virus distributed from the Kumaon and Gurhwal vaccine depôt during the past season, as compared with the previous year, show a considerable increase.

| Year.    | Crusts. | Points. | Glasses. | Tubes. | TOTAL. |
|----------|---------|---------|----------|--------|--------|
| 1861-62, | 12,488  | 989     | 203      | 2      | 13,682 |
| 1862-63, | 13,523  | 1,907   | 179      | 1,180  | 16,789 |

The increased demand for virus is to be attributed chiefly to the greater efforts now being everywhere made to introduce vaccination amongst the native population, and also to the larger requirements for Europeans, which steadily augment year by year. During the past season I have extensively used the vaccine tubes (the invention of Dr. Husband, of Edinburgh), and found them most efficacious, not only as affording an ever-ready supply of fresh vaccine virus, but in a great measure doing away with the necessity for taking away children from one village to another for the purpose of conveying the liquid lymph,—a course always distasteful to the parents, and a source of dispute with the vaccinators.

5. Before quitting the subject of examination, I must bring to the notice of Government the good offices of my Deputy Superintendent of Vaccine in Rohilcund (Baboo Bundedeen). To his energy and tact must be fairly ascribed the successful issue of the vaccine operations in that district. He spares no pains in communicating freely with all classes, high and low, and to his persua-

sions and conciliatory address the hold that vaccination is gradually acquiring amongst them is mainly due.

6. *Sanitary condition of Kumaon and Gurhwal.*—During the past year there was an epidemic of cholera, not of a very severe or extensive character, but remarkable from the fact of its having been imported into the Hills by pilgrims returning from the Hurdwar Fair, and also of its subsequent spread almost entirely by contagion. The facts I furnished in detail to Mr. Strachey, and I believe they are embodied in his Cholera Report, so that I need not here repeat them. With the exception of some four or five cases in two villages in Gurhwal, there has, I am happy to say, been no “Mahamurree.” Sanitary regulations, duly enforced, have hitherto proved themselves absolute in their power to control any outbreak of this formidable disease, whilst neglect of them as surely ensures one.

7. *Pilgrim Dispensaries in Gurhwal.*—These asylums, seven in number, supported out of the Gurhwal Local Agency Funds, fully maintain the purposes for which they were instituted, affording relief to hundreds of sick and needy pilgrims, and saving many lives that, without such aid, would indubitably be lost.

I have, &c.,

F. PEARSON,

From Officiating Secretary to Government, North-Western Provinces, to Superintendent of Vaccination, Rohilkund, Kumaon and Gurhwal (No. 2023A.)—Dated Nynce Tal, the 21st May, 1863.

SIR,—I have received and laid before the Hon'ble the Lieutenant-Governor your Vaccine Report for 1862-63, No. 43, dated 20th ultimo.

2. It appears from the Rohilkund returns, as compared with those of the previous year, that the total number of persons vaccinated has increased by 4,069, and the

successful cases by 3,803. These results are encouraging, and it is gratifying to His Honor to learn that the people are gradually becoming more convinced of the efficacy of vaccination, as is shown, not only by the increased numbers who avail themselves of it, but also from the fact that the higher class of natives now frequently send for the vaccinators to operate on their children, and remunerate them for their service.

3. Although in Kumaon and Gurhwal there has been a decrease of 1,000 in the total number of cases, yet this is satisfactorily accounted for by the circumstance that in Gurhwal the subjects for vaccination are annually becoming scarcer, there being few now to be found over three years of age who are unprotected.

4. The Lieutenant-Governor approves of your proposal to transfer one of the Gurhwal vaccinators next season to Kumaon, where there is a wider field for his services.

5. Your account of the success of the sanitary regulations adopted for the suppression of "Mahamurree" in Kumaon and Gurhwal, and of the relief afforded to the sick and needy at the several pilgrim dispensaries, is considered satisfactory.

6. His Honor is glad to learn the high opinion which you entertain of the energy and tact displayed by Baboo Bundedeen, your Deputy Superintendent of Vaccine in Rohilkund, and he concurs with you in attributing to the good services of this officer much of the success which has attended the operations of the Vaccine Department in that Division.

I have, &c.,

R. SIMSON,

Offg. Secretary to Government,  
North-Western Provinces.



## No. 20.

### SKETCH OF THE SYSTEM OF VACCINATION IN VOGUE IN THE NORTH-WESTERN PROVINCES, WITH RE- COMMENDATION FOR ITS EXTENSION.

From Secretary to Government, North-Western Provinces,  
to Secretary to the Government of India, Home De-  
partment (No. 2072 A.)—Dated Nynsee Tal, the 6th  
August, 1862.

SIR,—I am directed by the Lieutenant-Governor to  
acknowledge the

1.—From Superintendent of Vaccination, Agra  
Division, No. 23, dated the 12th June, 1862.

2.—From Superintendent Rohilkund, Kumaon  
and Gurhwal, No. 57, dated 7th June, 1862.

3.—Printed Pamphlet on Vaccination by Su-  
perintendent of Vaccination in Rohilkund, &c.,  
Assistant Surgeon F. Pearson.

4.—No. XXXV. of Selections from the Re-  
cords of this Government, containing Dr. Pearson's  
Report for 1860-61.

receipt of your  
letter, No. 2458,  
dated the 14th  
May last, on the  
subject of Vacci-  
nation in these  
Provinces, and to

submit the papers noted in the margin which bear upon it.

2. On the receipt of your letter under acknowledgment  
the Lieutenant-Governor, besides calling upon the two Su-  
perintendents of vaccination for reports regarding the  
system observed in their respective circles, and inviting  
their opinions as to the future action of the Government  
in promoting vaccination, directed the Assistant Secretary,  
Mr. A. Howell, to examine the existing records of the  
Secretariat; and to compile a Note, showing all particulars  
that could be ascertained respecting the past measures of  
the Government in this matter.

3. The following extract from Mr. Howell's Note will  
place the Government of India in possession of all the  
information that is available on the first (1) head of enquiry,  
as expanded in paragraph 2 of your letter under reply :—

“ In order to embrace all the points about which infor-  
mation is required by the Government of  
Introduction. India, it will be necessary to give briefly a

history of Vaccination in these Provinces; to show its present state; and then to consider if any improvements on the present system must be introduced, at what cost, and with what probable results. Unfortunately, owing to the partial destruction of our records during the mutiny, only a meagre and imperfect history is now attainable. This much, however, can be gathered:—

“ In the 38th Regulation published in the Medical Code in 1838, it was enacted that vaccine

II.—History up to 1851. depôts, under the control of the Medical Board, should be established at Benares and Bareilly. To these depôts Surgeons were to be attached with a vaccine allowance of Rs. 160 a month, to defray the cost of their establishments, and all other charges contingent on the preservation and distribution of the virus. In addition to this, the Civil Surgeons employed at the stations marginally noted were to act as Deputy Superintendents. They were to receive an extra allowance of Rs. 20 a month, and were permitted to entertain one or more native vaccinators on Rs. 8 or Rs. 10 a month to assist them in their duties. Magistrates of districts were requested to co-operate with the Superintendents, and a yearly report of vaccine operations was to be submitted to the Medical Board. There is nothing further noticeable in this Regulation, excepting only that the persons employed as inoculators were to be exclusively Brahmins and Mussulmans. Such was the origin of the system of Vaccination in the North-West, and as such apparently it continued until 1851, but no record of its operations can now be found.

|               |                |
|---------------|----------------|
| * Ghazeepore. | Dehli.         |
| Mirzapore.    | Moradabad.     |
| Goruckpore.   | Meerut.        |
| Azingurh.     | Shahjehanpore. |
| Jounpore.     | Seharanpore.   |
| Banda.        | Agra.          |
| Futtehpore.   | Allygurh.      |
| Allahabad.    | Boolundshuhur. |
| Humeerpore.   | Kumaon.        |
| Mynpoory.     | Ajmere.        |
| Cawnpore.     | Baitool.       |
| Futtehgurh.   | Saugor.        |
| Etawah.       | Jubbulpore.    |
|               | Seonce.        |

to this, the Civil Surgeons employed at the stations marginally noted were to act as Deputy Superintendents. They were to receive an extra allowance of Rs. 20 a month, and were permitted to entertain one or more native vaccinators on Rs. 8 or Rs. 10 a month to

"In 1851 a new era commenced: The Government of India called upon the various subordinate Govern-

### III.—Origin of the Dispensary system.

ments for their views as to the best means of introducing into this country a system of vaccination where previously untried, and of extending it where already in force. Reports were sent in, and among them Mr. Thomason, the then Lieutenant-Governor, recommended as follows :—

1st.—" ' That vaccine depôts should be established at proper places, and under efficient superintendence.

2nd.—" ' That a large staff of trained native vaccinators should be furnished with the prophylactic from these stores.

3rdly.—" ' That Assistant Surgeons should be constantly moving about the country during the most favorable season to see that the native vaccinators do their duty, and are well supplied with the virus.

4thly.—" ' That all the subordinate agency be under a zealous and able Superintendent General.'

" Other suggestions, very similar in their character, were submitted from Bombay and Madras, and in April, 1853, the Governor-General recorded a minute embodying these several reports, and on them based a Resolution that, as the Government of India had not then at command the agency for giving full effect to any of the various proposals sent in, a partial beginning of a new system should be entered upon, and a vaccinator on Rs. 10 a month should be attached to every Dispensary in the North-Western Provinces. Thus commenced the Dispensary system of vaccination, which is still in force. But before going on with the narrative of its progress, it will not perhaps be out of place here to notice some suggestions made by the Medical Board.

" The Board strongly recommended that vaccination

### IV.—Suggestions of the Medical Board.

should be considered one of the main objects

of Dispensary practice, and that the native doctors should

enjoin it upon all who might come to their institutions for relief; (2) that, during the cold weather, a native practitioner should invariably be attached to the Collector's camp; (3) that a subsistence allowance,—both for the journey and the time of their stay—at the same rate as that afforded to indigent witnesses, should be granted to persons bringing their children to be vaccinated; (4) that vaccination should in future be a condition of Government service, and that all natives now in employ should submit to it at once. Lastly, that native gentlemen should be encouraged to promote the cause both by their influence and example.

“ In the cold weather of 1853-54, following the Governor-General's Resolution, vaccine operations seem to have commenced all over the country, and

\* *Abstract of Returns from November, 1852, to April, 1853.*

|             |     |     |     |     |       |
|-------------|-----|-----|-----|-----|-------|
| Cases,      | ... | ... | ... | ... | 8,412 |
| Successful, | ... | ... | ... | ... | 4,642 |

*From November, 1853, to April, 1854.*

|             |     |     |     |     |        |
|-------------|-----|-----|-----|-----|--------|
| Cases,      | ... | ... | ... | ... | 20,852 |
| Successful, | ... | ... | ... | ... | 13,700 |

to have been attended with various degrees of success.

What this success was may be seen from this abstract\* of the Annual Report for 1854. Without going so far as to assert that these figures are absolutely trustworthy, there can be no doubt, by the manner in which they were received, that they showed a vast improvement over any previous returns. Two facts also formed a subject of congratulation; *first*, that the vaccine received from the Gurhwal depôt (which was then established in imitation of that already existing at Simla) had proved itself more efficacious than the imported article from England; and *second*, that the people of Rohilkund, where, especially in the hilly districts of Kumaon small-pox had ever raged with singular virulence, eagerly flocked to the vaccinators without any compulsory efforts on the part of the Civil Authorities. Doctor Pearson, in

his Annual Report, stated that he had vaccinated upwards of 7,000 people; that the villagers, the old and inoculated included, flocked to the vaccinators, and that petitions were frequently received begging for 'the English remedy.'

"But, just as irrigation and other works of utility in this country have been reared into vigour by the energy and intelligence of one man, so it appears to have become known to Government that it was

VI.—Introduction of the Bombay system into Rohileund under Dr. Pearson as Superintendent in 1854-55.

no accident that vaccination had been already so successful in Rohileund. The Government found in Dr. Pearson a man who had devoted himself to the subject, and when it was determined to imitate from Bombay a special establishment for vaccination only as an experiment, Dr. Pearson was at once appointed to superintend it, and Rohileund was chosen as the scene of its opera-

|                                              | Rs. | As. | P. | tions. The staff   |
|----------------------------------------------|-----|-----|----|--------------------|
| 1 Superintendent (consolidated salary), ...  | 550 | 0   | 0  | of this establish- |
| (With Rs. 5 a day travelling allowance.)     |     |     |    | ment is shown in   |
| 1 Writer, ...                                | 25  | 0   | 0  | the margin. The    |
| 6 Vaccinators at Rs. 10 each per mensem, ... | 60  | 0   | 0  | characteristic of  |
| 3 Peons, ...                                 | 15  | 0   | 0  | it was that it was |
| Total cost per mensem, ...                   | 650 | 0   | 0  | independent of the |

Dispensaries, and

was specially and solely designed for the extension of vaccination in the cold weather in the plains, and during the remaining eight months in the hills. Thus it appears that, at the end of 1854, not only was the Dispensary system in full operation, but a special experiment on the Bombay model was being tried in Rohileund.

"It may here be incidentally noticed that, during this year at Nimar, then under this

VII.—Incidental notice of vaccination in Nimar.

Government, a small vaccine establishment, at Rs. 44 a month (half of which charge was defrayed by Scindiah), was sanctioned

at the instance of Dr. Knapp. It flourished with an annually increasing success until 1857, and then fell in the general crash.

VIII.—Narrative continued, 1855-56. “ In the following season of 1854-55, both the Dispensary and the Bombay system, as it will henceforth be called, were at work together, with what

| DIVISION.                | CASES. | SUCCESSFUL. | result may |
|--------------------------|--------|-------------|------------|
| Rohilcund and Kumaon ... | 43,650 | 34,928      | be seen    |
| (a) Agra, ...            | 27,831 | 18,078      | from the   |
| Meerut, ...              | 11 560 | 6,317       | marginally |
| Cawnpore, ...            | 3,791  | 2,303       |            |
| Benares, ...             | 1,484  | 903         |            |

(a) For the marked success of the operations in the Agra Division, the thanks of Government were given to Dr. Murray, to whose zeal and energy it was justly attributable. noted abstract.

“ These figures fully satisfied the expectations of Govern-

|                                                                   | Rs.   | A. | P. | ment as regards    |
|-------------------------------------------------------------------|-------|----|----|--------------------|
| * 5 Native Superintendents, at Rs. 20 each, ...                   | 100   | 0  | 0  | the success of the |
| 60 Vaccinators, (2 for each Tehseel,) ...                         | 600   | 0  | 0  | experiment and     |
| 1 Writer, ...                                                     | 25    | 0  | 0  | the efficiency of  |
| 3 Peons, ...                                                      | 15    | 0  | 0  | Dr. Pearson's su-  |
| 6 Vaccinators, } for the Hills, ...                               | 60    | 0  | 0  | perintendence.     |
| 6 Extra Vaccinators sanctioned by the Commissioner of Kumaon, ... | 42    | 0  | 0  | Accordingly in     |
| Contingencies, ...                                                | 50    | 0  | 0  | October, Dr. Pear- |
| Cost of Establishment, ...                                        | 892   | 0  | 0  | son was authorized |
| Superintendent's salary, ...                                      | 550   | 0  | 0  | to take the entire |
| Total cost pr mensem, ...                                         | 1,442 | 0  | 0  | charge of vac-     |

cine operations throughout the whole Division. Dr. Pearson at once organized an establishment\* to act in each district, and the result was that, in the season of 1855-56, no less than 82,287 persons were vaccinated, among whom there were 54,505 successful cases, a number which exceeded almost by one-half the proportion of successful cases registered for the year throughout all the other Divisions of the North-Western Provinces. These figures

were the more satisfactory, as they were perfectly trustworthy, Dr. Pearson himself personally inspecting the cases with a minuteness and an accuracy that defied falsification on the part of the vaccinators.

“ The experiment had proved a great success, and it is

IX — Further introduction of the Bombay system into Agra, 1856-57. not to be wondered at that, in August, 1856, the Government organized a similar staff and establishment\*

|                                           |     |     | Rs. | As. | P. |                 |
|-------------------------------------------|-----|-----|-----|-----|----|-----------------|
| * Dr. Farquhar,                           | ... | ... | 550 | 0   | 0  | at Agra, over   |
| 3 Native Superintendents, at Rs. 25 each, | ... | ... | 75  | 0   | 0  | which Dr. Far-  |
| 30 Vaccinators at 10 Rs. each,            | ... | ... | 300 | 0   | 0  | quhar was ap-   |
| Contingencies, ...                        | ... | ... | 40  | 0   | 0  | pointed Super-  |
| Total,                                    | ... | ... | 415 | 0   | 0  | intendent. This |
|                                           |     |     |     |     |    | establishment   |

altogether resembled its predecessor in Rohilcund, with this difference only that, whereas all vaccine operations must be suspended in the Agra Circle during seven months in the year, the Superintendent, during this period, was to be employed as a Lecturer in the Educational Department of the Thomason Hospital, and his staff was to be engaged in gaining a practical knowledge of medical duties generally; but it was clearly to be understood that, as in Rohilcund, sanction was only accorded to it as an experiment. During the remainder of the year no further

|                                       |     |     | Rs. | As. | P. |                   |
|---------------------------------------|-----|-----|-----|-----|----|-------------------|
| * 5 Native Supdts., at Rs. 20 each,   | ... | ... | 100 | 0   | 0  | measures seem     |
| 30 Vaccinators, at Rs. 10 each,       | ... | ... | 300 | 0   | 0  | to have been tak- |
| 10 Do. for the Hills, at Rs. 10 each, | ... | ... | 100 | 0   | 0  | en, with the ex-  |
| 2 Native Supdts., at Rs. 15 each,     | ... | ... | 30  | 0   | 0  | ception that Dr.  |
| 3 Peons, at Rs. 5 each,               | ... | ... | 15  | 0   | 0  | Pearson's es-     |
| 1 Baboo,                              | ... | ... | 25  | 0   | 0  | tablishment†      |
| Contingencies,                        | ... | ... | 50  | 0   | 0  | was, at his own   |
| Total cost per mensem, Rs.            | ... | ... | 620 | 0   | 0  |                   |

request, reduced from Rs. 892 monthly to Rs. 620. What was the success of the operations of 1856-57 it would be interesting to know; but the mutiny leaves a blank over

this and the two following seasons, and the general narrative must be resumed in April, 1859, from which month may be dated the re-organization, as a whole, of the present system of vaccination in these Provinces.

“What this system now is, and what it has done, may, after the preceding remarks, be shown very briefly.

X.—The present system.

“There were in these Provinces, on the 1st of January, 1862, 28 Dispensaries, to which 47 vaccinators, on a salary of Rs. 10 each, were attached. These vaccinators receive their full pay during the whole year. From the beginning of October to the middle of April they are employed in vaccinating only; for the remainder of the year they are expected to attend the Dispensary daily, and to make themselves generally useful, more especially in seasons of epidemic. The rate of pay is the same for all, and does not lead to a pension; but there is no difficulty in getting men of respectable caste to supply vacancies. All vaccine operations are duly registered and entered into the Annual Dispensary Report. Such is the detail of the Dispensary system; and the annexed Tabular Statement will show the extent of its operations up to the close of the last season :—

| Division.       | CASES. |        |        |        | SUCCESSFUL CASES. |        |        |        |
|-----------------|--------|--------|--------|--------|-------------------|--------|--------|--------|
|                 | 1858.  | 1859.  | 1860.  | 1861.  | 1858.             | 1859.  | 1860.  | 1861.  |
| Meerut, ...     | 2,572  | 11,771 | 29,679 | 30,601 | 1,444             | 8,853  | 21,329 | 18,560 |
| Agra, ...       | 1,922  | 6,530  | 6,164  | 8,283  | 1,255             | 4,701  | 4,014  | 5,890  |
| Rohilkund, ...  | 1,313  | 16,694 | 26,669 | 25,288 | 760               | 10,635 | 17,145 | 16,857 |
| Allahabad, ...  | 184    | 2,323  | 2,569  | 4,637  | ...               | 1,321  | 1,438  | 3,361  |
| Jhansie, ...    | ...    | 15     | 18     | 125    | ...               | 2      | ...    | 90     |
| Goruckpore, ... | 282    | 392    | 646    | 366    | 121               | 106    | 200    | 106    |
| Ajmere, ...     | 218    | 139    | 600    | 450    | 49                | 4      | 378    | 295    |
| Kumaon, ...     | 396    | 787    | 4,014  | ...    | 260               | 470    | 3,582  | ...    |
| Benares, ...    | 935    | 1,332  | 2,160  | 2,572  | 461               | 784    | 1,102  | 1,036  |
| TOTAL, ...      | 7,822  | 39,983 | 72,519 | 72,322 | 4,350             | 26,879 | 49,188 | 46,195 |



“Dr. Pearson’s special establishment on the Bombay

XII.—Dr. Pearson’s present Establishment.

model, the re-establishment of which was sanctioned in G. O., Financial Department, dated the 12th of December, 1859, consists in Rohilkund of a deputy superintendent on Rs. 150 a month, two native superintendents on Rs. 20 each, and 30 vaccinators on Rs. 10 each. In Kumaon, attached to the Gurhwal vaccine depôt, there are two native superintendents on Rs. 15 each, and nine vaccinators also at Rs. 10 each. There is, moreover, a writer on Rs. 25, and three peons on Rs. 5 each, attached to the general staff. In the Rohilkund establishment, during seven months in the year, the native superintendents draw Rs. 16 a month, and the vaccinators Rs. 8, unless they choose to go and study at the Agra Medical School, which, Dr. Pearson observes, they very rarely do. The full pay, however, is always drawn, and the surplus, averaging about Rs. 50 a month, is, with the sanction of His Honor the late Lieutenant-Governor, expended on prizes for the most proficient, and on other expenses incidental to the Department. Dr. Pearson thinks that the pay of vaccinators in the non-working months might be reduced to Rs. 7, and that a pension is not necessary. He very decidedly advocates that, whatever the establishment may be, it should be permanent. ‘It is the permanence of the employ,’ he states, ‘that makes the service popular with respectable men.’ Should it be made temporary, he believes that vaccination will come to a dead-lock from the want of properly qualified servants.

“Dr. Pearson’s re-appointment to his present position

XIII.—What Dr. Pearson has effected.

was, as has been before stated, sanctioned in December, 1859, and in the same year his jurisdiction in the hills was limited to the eastern side of the Jumna, the tract on the western bank remaining under the Government of the Punjab. But his establishment had been scattered. Here and there

one of the old staff might be found; but the task of instruction and re-organization had to be commenced anew. Accordingly, during the season of 1859-60, Dr. Pearson was unable to extend his operations beyond Kumaon and Gurhwal; yet, under these difficulties, he showed in his report for the year that, out of a total number of 13,406 persons vaccinated, 11,372 cases were successful. In the same report Dr. Pearson promised to bring his establishment into a thorough state of efficiency for the following season of 1860-61. How he fulfilled his promise will best be shown in his own words:—

“VACCINATION.—I made my first commencement of Vaccination in 1853 ‘at the villages of Ramree, in the north of Gurhwal. After two whole days spent ‘in useless endeavours to persuade ‘its inhabitants to accept it, I determined upon waiting ‘the arrival of Mr. Strachey. At his persuasion they consented to take it. From this date one village after another ‘followed the good example, and vaccine flourished. Not ‘but what here and there, from time to time, arose an ‘opponent to do battle against the innovation, for inoculators were abroad, their occupations gone, vilifying the new ‘prophylactic, and warning their native brethren against ‘it. The reign of vaccine was now, however, fairly established. The district was mapped out into six divisions; ‘a vaccinator was told off to each. The people came forward readily, and by 1860 the whole population had been ‘protected. Last year there was one death from small-pox, ‘and one only, amongst a population numbering about ‘2,50,000, over an extent of country 5,000 square miles in ‘extent. I affirm that there is not a country in Europe, not ‘even excepting Prussia, where vaccination has been for ‘many years past compulsory, that can show a more favorable result; and this at a cost of six vaccinators on Rs. 10

'each per mensem, or £72 per annum. But this does not  
 'by any means represent all the advantages obtained, for  
 'during these seven years the whole of the North-Western  
 'Provinces and Bengal have been supplied with perpetual  
 'relays of fresh vaccine virus, showering its blessings upon  
 'untold thousands. It is chiefly in this light that the value of  
 'the Hill establishment must be regarded, for here are the  
 'seed-beds, the nurseries from which our supplies, retain-  
 'ing their activity unimpaired, are raised. No amount of  
 'supplies from home would take their place. To rely upon  
 'England, we should be doomed to perpetual vexation  
 'and disappointment; for not one batch in ten arrives  
 'effective and uninjured by the heat of passage. Previous  
 'to the introduction of vaccination in Gurhwal, the cus-  
 'tom of the people was to protect themselves by inocula-  
 'tion. The real secret of the success of vaccination was  
 'the fact discovered by the people of the powerlessness of  
 'inoculation on a successfully-vaccinated subject. I had  
 'given my consent to the people to try it in such cases,  
 'and was willing to take my stand on the results. The  
 'professional inoculators were obliged to admit the fact of  
 'the efficiency of the innovation, but, as their last subter-  
 'fuge, pronounced that it would not be permanent. How-  
 'ever, vaccination was declared to have won the day, and  
 'it triumphed and prospered accordingly. I was much  
 'amused once by a Bunniah coming to me to complain  
 'that his child, who had been successfully vaccinated,  
 'would not take inoculation, and what was to be done.  
 'Remembering the opposition of former days, it is a source  
 'of gratification to find people now humbly asking for  
 'vaccination. Within the last few weeks, I have had  
 'petitions from people not in our own territories, from  
 'Thibet and Terec Rajah's Gurhwal, begging for English  
 'vaccination. Petitions from our own subjects are now  
 'common enough. My Hill establishment consists of but  
 'six vaccinators,—enough, and only enough, for Gurhwal.

' In Kumaon small-pox, epidemic and inoculated, still  
' sweeps off its hundreds annually. If His Honor the  
' Lieutenant-Governor would allow me to reduce three  
' native superintendents in Rohilcund, and employ the  
' Rs. 60 thus saved on six vaccinators in Kumaon, I would  
' engage that, within the next ten years, small-pox  
' should be as little known there as in the Gurhwal of  
' 1860.\* This brings me to

\* This was sanctioned.

' another proposition. In

' Rohilcund there are at present 30 vaccinators, one to  
' each Tehseel; five native superintendents, one to each  
' zillah; and one department superintendent for the  
' whole of the districts. The population of Rohilcund  
' numbers five millions; six vaccinators to one million!  
' A mere drop in the ocean. Amongst such swarms the  
' vaccinators are lost, their presence unheeded and unfelt.  
' My belief is that, for vaccination ever to be successfully  
' carried out on any large scale, it is first of all neces-  
' sary to make the people believe in it. When they see  
' that it has really protective power against small-pox,  
' they will seek it for themselves and children, and then  
' all difficulty has vanished; for then their own native  
' practitioners, *Baids* and *Hukeems*, can be taught the art,  
' and supplied with virus, and would earn no despicable  
' livelihood if they charged but one anna for each success-  
' ful case. This should be our constant aim, for it is im-  
' possible to suppose that Government can, at its own ex-  
' pense, undertake to keep vaccinated two hundred mil-  
' lions of people. The people must be taught to do it for  
' themselves, and the first step is to make them want it.  
' I therefore strongly recommend that I may be allowed  
' to concentrate the whole strength of my Rohilcund es-  
' tablishment upon the two zillahs of Moradabad and

\* This was authorized.

' Bijnour\*; and I have but  
' little doubt in my own mind

that, in the course of the next few years, whilst small-pox is

'raging all around their boundaries, those two zillahs shall  
 'present the astounding spectacle,—astounding to the minds  
 'of the natives,—of a clean bill of health. It is only by mak-  
 'ing some such profound impression upon their minds that  
 'they can be stirred out of their apathy and disbelief.  
 'Now that the vaccinators (in Rohileund) are sparse and  
 'scattered, the people constantly refuse their services, and  
 'pass them on to the next village, there again perhaps to  
 'undergo the same process. The villagers know nothing  
 'about vaccination and care less. Under my proposed  
 'system of concentration of vaccinators, their influence  
 'from numbers would be greater; each village would be  
 'sure of a visit every season, and would see the hopeless-  
 'ness of perpetually attempting to avoid accepting the  
 'vaccinator's services. The reduction of three native  
 'superintendents then in excess, would give the sum  
 'necessary for the six vaccinators in Kumaon. I should  
 'then have nearly three vaccinators for each Tehseel in  
 'Moradabad and Bijnour, ample according to my calcula-  
 'tion for the end desired. I have always labored to im-  
 'press upon the vaccinators that the object of vaccination  
 'is not numbers or returns, but successful vaccination;  
 'that is, complete protection to the individual vaccinated;  
 'and all arrangements are made to meet that view of the  
 'case. For I regard all vaccine returns, under ordinary  
 'circumstances, as worthless, and I therefore hold out no  
 'inducements to lie. Each vaccinator is rewarded by  
 'prizes, or punished by fines, entirely by the number and  
 'quality of the crusts he sends me. Upon these alone  
 'is he judged and weighed. He can only manufacture  
 'good vaccine crust by good vaccination; so here is no  
 'source of deception. Remove all object for deceiving, and  
 'then there is some chance of what returns he does send  
 'being reliable. I believe mine to be as near the truth as  
 'it is possible to get them. In Rohileund, the numbers  
 'vaccinated this season have been, owing to the famine,

'smaller than usual; viz., in all 28,151. Of this number, '16,346 were successful; 6,359 unsuccessful; 2,491 doubtful; and 2,955 'result unknown.' In the Hills there 'were vaccinated 11,121, of whom 9,801 were successful; '567 unsuccessful; 461 doubtful; and 292 'result unknown;' making a grand total of 39,272 vaccinated, giving an average of upwards of 250 operations per mensem 'by each vaccinator, which is nearly as much as one man 'can accomplish properly. From the Hill depôt were 'distributed 7,794 crusts, 1,568 points, and 191 glasses,—a 'considerable increase on former years,—and from all 'quarters letters have been received acknowledging their 'excellence. I regret that, throughout this report, I have 'been unable to give more figures and statistics; but reliable statistics are unobtainable. I have consequently 'been obliged to make only general statements, but they 'may be accepted as in the main trustworthy.'

"These were great results, and it must be noted that in the same return Dr. Pearson reported that, by the introduction of strict sanitary measures into Kumaon and Gurhwal, he had exterminated a pestilence which, identified with the Egyptian plague, and emphatically called by the terror-stricken inhabitants 'the Mahamurree,' had lately burst over the district with fearful fury, sweeping away whole villages. The account is most interesting, but cannot be included in a notice on vaccination.

"Dr. Pearson's third season closed in April last. As he promised, in the extract above quoted, he has confined his operations in Rohilkund to the zillahs of Moradabad and Bijnour, and out of 31,863 persons vaccinated, shows a return of 17,761 successful cases. There can be little doubt that the result of the experiment will be the desirable effect of widely diffusing a confidence in the system. In Kumaon and Gurhwal, 12,907 operations have succeed-

ed out of 15,377, the larger proportion of success being justly attributable to the colder climate, which, besides being itself more favorable to vaccination, ensures that the vesicle is protected by clothing.

“ Dr. Pearson’s entire operations since his re-appointment may be thus epitomized :—

| <i>Season.</i> | <i>Cases.</i> | <i>Successful Cases.</i> |
|----------------|---------------|--------------------------|
| 1859-60, ...   | 13,406        | 11,372                   |
| 1860-61, ...   | 39,272        | 26,147                   |
| 1861-62, ...   | 47,230        | 30,668                   |
|                | <hr/>         | <hr/>                    |
|                | 99,908        | 68,187                   |
|                | <hr/>         | <hr/>                    |

“ The re-organization of this establishment on a

XIV.—Dr. Christison’s Special Es- permanent footing was  
tablishment in Agra. sanctioned in Govern-

ment Orders No. 714, dated the 10th of May, 1859, under the superintendence of the present incumbent. It consists of three native superintendents on Rs. 25 a month during the cold season, and Rs. 10 during the remaining seven months, and of 26 vaccinators on Rs. 10 and Rs. 6 similarly. A writer on Rs. 25 for compiling the returns, and a chuprasee on Rs. 5 complete the staff. The superintendent has the power, at discretion, of reducing the number of vaccinators during the non-working months, and for the present hot season has only retained 21, who are regular attendants at the Agra Medical School. Dr. Christison concurs with Dr. Pearson in strongly recommending a *permanent* establishment, and in considering a pension to be unnecessary as a general rule. He thinks that the rate of pay to vaccinators should not be uniform, but vary according to proficiency from Rs. 15 a month downwards, and that the Superintendent should have the power of dismissing any of them if incompetent.

“What has been effected in the Agra Circle will be

XV.—The operations in the Agra Circle, from May, 1859, up to the close of the Season of 1861-62 :—

best shown in the appended form :—

“I regret to record my conviction here that these numbers are a wholesale imposition. I might mention very many obvious reasons. Among them my personal knowledge of what was done in Etawah ; but there can be no object in re-opening the question. I would simply protest against these figures forming any data in favor of any system.”—A. H.

“They have been scouted by Dr. Pearson, in personal communication with myself, as impossible, and they were totally discredited by Dr. Christison on his re-appointment to be Superintendent of Vaccination at Agra ; that gentleman, however, from motives of delicacy to Dr. Currie, who had died just before, refrained from officially impugning the returns. Dr. Christison’s own returns, however, for 1861-62, do practically show that no reliance can be placed on those for the two preceding years.”—G. E.

| <i>Season.</i> | <i>Cases.</i> | <i>Successful Cases.</i> |
|----------------|---------------|--------------------------|
| 1859 60,       | 2,77,957      | 1,73,635                 |
| 1860-61,       | 2,12,533      | 1,07,833                 |
| 1861-62,       | 36,637        | 17,155                   |
|                | <hr/>         | <hr/>                    |
|                | 5,27,127      | 2,98,623                 |
|                | <hr/>         | <hr/>                    |

“The marked difference in the returns of the past season must be accounted for by the change of Superintendents. The operations of 1859-60 and 1860-61 were carried on under the late Dr. Currie, who was succeeded by Doctor Christison in September, 1861. Dr. Currie’s returns were accepted at the time, and must be recorded here. It need only be observed that he makes no mention in his report of having adopted the efficacious system of test established in Rohilcund, without which, with the best intentions, accuracy is impossible.

“Such, then, is the agency, and such are the results of

XVI.—Is the present system of vaccination susceptible of improvement ?

the system of vaccination now in force in



these Provinces ; and a *resume* of its statistics will form the best data whereby to answer the question originally proposed,—if this system is susceptible of improvement.”

| System.                      | Cost per mensem. |    |    | Operations. | Successes. |
|------------------------------|------------------|----|----|-------------|------------|
|                              | Rs.              | A. | P. |             |            |
| Dispensary, ... ..           | 470              | 0  | 0  | 72,322      | 46,195     |
| Bombay under Dr. Pearson,..  | 1,200            | 0  | 0  | 47,230      | 30,668     |
| Bombay under Dr. Christison, | 915              | 0  | 0  | 36,637      | 17,155     |

4. It will have been seen from the foregoing that, at the present time, there is a mixed system in force. In the hills of Kumaon and Gurhwal, and in Rohilcund, Dr. Pearson and his establishments, representing the “Bombay system,” exercise their functions ; in the six districts of the Agra Division, the same system is practised under the direction of Dr. Christison ; while in the rest of the North-Western Provinces, vaccination is offered only at the Dispensaries. It must not however be overlooked that, besides the special establishments of Drs. Pearson and Christison, there are vaccinators attached to the Dispensaries of the Rohilcund and Agra Divisions, and the table which appears at page 5 of Mr. Howell’s Note would seem to show that their success, in Rohilcund at least, fell but little short of that achieved by Doctor Pearson himself in 1861-62. But this result, the Lieutenant-Governor thinks, is apparent only.

5. Referring now to the second point of enquiry, the Lieutenant-Governor desires me to submit the following remarks for the consideration of the Government of India.

6. At first sight the table at the close of the preceding extract from the Assistant Secretary’s Note would lead to the conclusion that what has been called the Dispensary system, should be preferred to any other, as being the most economical ; and judged by the number of operations and their alleged success, the most efficient.

But the Lieutenant-Governor is fully persuaded that this would be an error.

7. In the first place, it is his belief that the returns of vaccination received from the Dispensary Committees cannot be considered trustworthy, not because the Civil Assistant Surgeons in charge of those institutions are indifferent about the results, but because they cannot exercise any efficient supervision over the vaccinators, and are unable personally to test the effect of their operations. There may be one or two or more vaccinators attached to each Dispensary, and one or more are sent out, at the proper season of the year, into the surrounding villages to carry on their functions in respect of those who may consent. These men give in their own returns, which, it is believed, are accepted without examination or scrutiny. The Civil Assistant Surgeon has medical charge of the station, of the Civil establishments, of the Police and of the Jail; he has also the management of the latter; he can seldom or never leave his station, much less can he have time to follow in the footsteps of the vaccinators, and satisfy himself, by examination on the spot, how far the returns are trustworthy. It would be of little avail to entrust such a duty as this to an ordinary native doctor, even if he could be spared from the Dispensary.

8. In the next place, it is to be remarked, the crucial test, with which alone Dr. Pearson is satisfied, namely, the production of a good crust for every case admitted into the returns as successful, is never, and never has been, so far as the Lieutenant-Governor is informed, exacted from the Dispensary vaccinators; and, in point of fact, it would hardly be possible to exact it, because those who are operated upon are, if not residents of the place, either travellers through the Sudder station, who apply for medical treatment, and pass on, no one knows whither, or occasional applicants at the Dispensary for relief, of whom,

or of whose residence, mostly no note would be taken. The vesicle is not matured until the tenth day, and in much less time than ten days both these classes have disappeared; or, at any rate, are beyond observation.

9. Again, it must be added two, or may be three vaccinators, can do little towards the diffusion of the prophylactic in a district having an area of about 2,500 square miles, and a population of lacs. Unsupported as they are by the presence and assistance of an European Officer, they carry with them little influence; so they are unable to explain the principle of the system. They can make no impression on the minds of the natives, or stir them out of their prejudice and disbelief; and, as Dr. Pearson says, their services are constantly refused, and they are passed on to the next village, "there perhaps again to undergo the same process."

10. But the worst effect of such a system as this Dispensary system, carried on by native vaccinators, without close check and supervision, in a desultory manner over large areas, is that the results not being tested, persons who have submitted to vaccination in the belief that it affords complete protection from small-pox, may still contract the disease if the operation has been unsuccessful; and the not unnatural consequence must be the extinction of all faith in the efficacy of the prophylactic on the part of all those who may become acquainted with such incidents. The people of course are impressed with the notion that the mere insertion of the lancet under the cuticle completes the operation, and gives them immunity from the scourge; they do not know the characteristics of a perfect vesicle; and, in case of after infection, their weak faith is undermined, and with them and their neighbours vaccination is entirely discredited. Such results can be averted only by well-directed and concentrated effort, of which a few native vaccinators, scattered in twos and threes over the length and breadth of these Provinces,

are incapable. Amongst the swarms of the people, says Dr. Pearson, "the vaccinators are lost; their presence unheeded and unfelt."

11. The Lieutenant-Governor shares Dr. Pearson's "belief that, for vaccination ever to be successfully carried out on any large scale, it is first of all necessary to make the people believe in it. When they see that it has a really protective power against small-pox, they will seek it for themselves and children, and then all difficulty has vanished; for then their own native practitioners, *Baids* and *Hukeems*, can be taught the art, and supplied with virus, and would earn no despicable livelihood, if they charged but one anna for each successful case. This should be our constant aim." It is undoubtedly to this end that all our measures should be directed, and the only question is, how this can be most speedily and effectively accomplished.

12. The Lieutenant-Governor cannot recommend any half measures. The object is to naturalize (so to speak) vaccination in India, and it is sufficiently important to call for a consistent and sustained effort, even though, in the first instance, the expense should be considerable. It will be admitted, His Honor thinks, on perusal of Dr. Pearson's printed report, and of what has been set forth in pp. 7 to 10 of this address, that the desultory and imperfect action of the Dispensary system can never be expected to remove the native prejudice in favor of inoculation, and make the people converts to the "English remedy." This has been achieved by Dr. Pearson under the Bombay system, as will be seen from the facts stated in his most interesting report above referred to. Inoculation in Gurhwal has given way to vaccination. The last subterfuge of the professional inoculators, that the effect of the new system would not be permanent, has been practically exposed. A Bunniah, finding that his child, having been successfully vaccinated, will not take inoculation,

wonders what is to be done! And Dr. Pearson records as the result, that "within the last few weeks (1861) he has had petitions from people, not in our own territory, from Thibet and the Tehree Rajah's Gurhwal, begging for English vaccination. Petitions from our own subjects," he adds, "are now common enough."

13. Is there any reasonable ground to suppose that what has been accomplished by Dr. Pearson under the Bombay system, among a population of 2,50,000, should be impossible elsewhere; if the like means be afforded? And will the Government of India, seeing the important object in view, hesitate to give the means? The Lieutenant-Governor would fain hope that they will accord a ready assent to his proposal that the Bombay system be extended to the whole of the North-Western Provinces, and that they will sanction the schedule of establishments which he will now proceed to describe and submit.

14. It has been already stated that Dr. Pearson's operations extend over the Hill provinces of Kumaon and Gurhwal, and the Rohileund Division, now numbering six districts, while the special establishment belonging to Dr. Christison has to do with the six districts of the Agra Division. The cost, too, of *all* the establishments engaged in vaccination; whether under the gentlemen just named or at the Dispensaries, has been above exhibited as amounting to Rs. 2,585 per mensem, or Rs. 31,020 per annum.

15. In order to carry out an uniform scheme of vaccination throughout the North-Western Provinces, it is essential that there should be able supervision, and that that supervision should be exercised by one selected Officer possessing the highest qualifications for the task. It seems to the Lieutenant-Governor (though without any communication with him on the subject) that Dr. Pearson, without being relieved from any portion of his present charge, may be able to undertake this duty; and that he

is better qualified for it than any other officer in the Medical service may be safely assumed. Acting on this belief, the Lieutenant-Governor proposes to add Rs. 400 per mensem to Dr. Pearson's allowances for this additional work, and to leave his present establishments practically untouched, with a reservation that a second clerk may be hereafter entertained, if the work of supervision should, as almost certainly it will, prove the necessity of such aid.

16. Further, the Lieutenant-Governor is of opinion that Dr. Christison's superintendence may be extended beyond the Agra Circle to the Meerut Division, provided that for the latter an establishment of native superintendents and vaccinators, equal in strength to that entertained in the Agra Division, be sanctioned.

17. There remain the divisions of Allahabad and Jhansie, each containing only four districts, and the Benares Division, having, inclusive of Goruckpore (itself equal to three average districts in area and population), six districts. The Lieutenant-Governor would propose, as regards the two former divisions, to appoint a Superintendent of Vaccination on the salary which Dr. Christison receives, and to assign to each of them an establishment of native superintendents and vaccinators on a somewhat lower scale than that which obtains in the Agra Circle, where there are twelve districts, instead of, as here, eight only.

18. For Benares, an establishment similar and equal to Dr. Christison's will be needed. There are but six districts, it is true, but Goruckpore alone has an area of 7,300 square miles, and a population of 30,87,874, while the remaining five districts have, on an average, an area of 2,479 square miles, and a population of 639 persons to the square mile each; the average population in the whole of the North-Western Provinces being 420 to a square mile.

19. With these prefatory remarks, I am desired to subjoin the following tables, exhibiting the strength, consti-

tution, and cost of the several establishments, for the consideration and orders of the Governor-General in Council:—

## KUMAON, GURHWAL AND ROHILKUND.

| DESIGNATION.                                                          | Rate of pay per mensem. |            |                   |       | Amount for   |               | Total of each per annum. | Grand Total per annum.                                            | REMARKS.                                                                                                                                                                                               |
|-----------------------------------------------------------------------|-------------------------|------------|-------------------|-------|--------------|---------------|--------------------------|-------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                       | For five months.        |            | For seven months. |       | Five months. | Seven months. |                          |                                                                   |                                                                                                                                                                                                        |
|                                                                       | For whole year.         | Rs.        | Rs.               | Rs.   |              |               | Rs.                      | Rs. |  | Rs. |
| Superintendent, Dr. Pearson, ...                                      | 550                     | 0          | 0                 | 0     | 0            | 0             | 6,600                    | Required to take charge of Depôt, and business connected with it. | * In the Hills these would be employed all the year round either in vaccination, or in the preparation and despatch of virus to applicants in the plains, and other business connected with the Depôt. |
| Depy. Superintendent, ...                                             | 150                     | 0          | 0                 | 0     | 0            | 0             | 1,800                    |                                                                   |                                                                                                                                                                                                        |
| 2 Native Supdts., ...                                                 |                         | at 20 each | 200               | 224   | 424          |               |                          |                                                                   |                                                                                                                                                                                                        |
| 30 Vaccinators, ...                                                   |                         | at 10 each | 1,500             | 1,260 | 2,760        |               |                          |                                                                   |                                                                                                                                                                                                        |
| 2 Native Supdts.,* for Hills, ...                                     | 15 each                 | 0          | 0                 | 0     | 0            | 0             | 360                      | }                                                                 |                                                                                                                                                                                                        |
| 10 Vaccinators* for Hills, ...                                        | 10 each                 | 0          | 0                 | 0     | 0            | 0             | 1,200                    |                                                                   |                                                                                                                                                                                                        |
| OFFICE ESTABLISHMENT.                                                 |                         |            |                   |       |              |               |                          |                                                                   |                                                                                                                                                                                                        |
| 1 Writer, ...                                                         | 25                      | 0          | 0                 | 0     | 0            | 0             | 300                      |                                                                   |                                                                                                                                                                                                        |
| 3 Peons, ...                                                          | 5 each                  | 0          | 0                 | 0     | 0            | 0             | 180                      |                                                                   |                                                                                                                                                                                                        |
| Contingencies, ...                                                    | 50                      | 0          | 0                 | 0     | 0            | 0             | 600                      | 14,324                                                            |                                                                                                                                                                                                        |
| Add for Dr. Pearson's General Superintendence, at Rs. 400 per mensem. | ...                     | ...        | ...               | ...   | ...          | ...           | ...                      | 4,800                                                             |                                                                                                                                                                                                        |
|                                                                       |                         |            |                   |       |              |               |                          | 19,024                                                            | per annum.                                                                                                                                                                                             |





## BENARES.

As for Agra Circle, ... Rs. 10,776 Grand Total per annum.

| ALLAHABAD AND JHANSIE. |                        |                  |                   |              |               |                          |                        |          |  |
|------------------------|------------------------|------------------|-------------------|--------------|---------------|--------------------------|------------------------|----------|--|
| DESIGNATION.           | Rate of pay per mensem |                  |                   | Amount for   |               | Total of each per annum. | Grand Total per annum. | REMARKS. |  |
|                        | For whole year.        | For five months. | For seven months. | Five months. | Seven months. |                          |                        |          |  |
| ...                    | Rs.                    | Rs.              | Rs.               | Rs.          | Rs.           | Rs.                      | Rs.                    |          |  |
| Superintendent,        | 550                    | 0                | 0                 | 0            | 0             | 6,600                    | 9,644                  |          |  |
| 2 Native Supdts.,      | ...                    | 20 each          | 16 each           | 200          | 224           | 424                      |                        |          |  |
| 20 Vaccinators,        | ...                    | 10 each          | 6 each            | 1,000        | 840           | 1,840                    |                        |          |  |
| 1 Writer,              | 25                     | 0                | 0                 | 0            | 0             | 300                      |                        |          |  |
| 2 Peons,               | at 5 each              | 0                | 0                 | 0            | 0             | 120                      |                        |          |  |
| Contingencies,         | 30                     | 0                | 0                 | 0            | 0             | 360                      |                        |          |  |
| Add for Jhansie:—      |                        |                  |                   |              |               |                          |                        |          |  |
| ...                    | ...                    | 20 each          | 16 each           | 200          | 224           | 424                      | 2,300                  |          |  |
| 2 Native Supdts.,      | ...                    | 10 each          | 6 each            | 1,000        | 840           | 1,840                    |                        |          |  |
| 20 Vaccinators,        | ...                    | 0                | 0                 | 0            | 0             | 36                       |                        |          |  |
| Contingencies,         | 30                     | 0                | 0                 | 0            | 0             | 0                        |                        | 11,944   |  |

The cost therefore of the whole scheme, as recommended by the Lieutenant-Governor, is thus shown, inclusive of general superintendence:—

|                                           |         |        |
|-------------------------------------------|---------|--------|
| Kumaon, Gurhwal and Rohilcund, per annum, | Rs.     | 19,024 |
| Agra and Meerut Divisions,                | " " "   | 14,532 |
| Benares Division,                         | " " "   | 10,776 |
| Allahabad and Jhansie Divisions,          | " " "   | 11,944 |
| <hr/>                                     |         |        |
| GRAND TOTAL per annum,                    | ... Rs. | 56,276 |
| <hr/>                                     |         |        |

20. But if these proposals be adopted, it is the purpose of the Lieutenant-Governor that all Dispensary vaccinators be dismissed, or rather absorbed in the new establishments. The monthly cost of these, as shown in the Assistant Secretary's Note, is Rs. 470 per mensem, or Rs. 5,240 per annum. This sum, deducted from the entire proposed outlay above exhibited, will leave the sum of Rs. 51,036 as the cost of Vaccine establishments throughout the North-Western Provinces. The expenditure per head of the population will be a bare fraction. The increase over present outlay amounts to Rs. 20,016 per annum.

21. The Lieutenant-Governor is quite prepared to receive objections to these recommendations on the score of their expensiveness, but he is persuaded that the operations, as they have been hitherto conducted, except under Doctors Pearson and Christison, are worse than useless. They are calculated only to produce false impressions, and instead of propagating among the people a thorough belief in the efficacy of vaccination as a protection from small-pox, to bring it into discredit. The money expended in the Dispensary system produces, he believes, no fruit whatever. And convinced as he is that nothing short of a strong and sustained effort will serve to naturalize vaccination, His Honor cannot convince himself to any measure other than an extension of the system which, in the hands

of Dr. Pearson, has been triumphant. Considering, indeed, the extent of the field in which operations are to be carried on, and the strength of the prejudices to be overcome, the Lieutenant-Governor feels that the establishments proposed are weak in comparison. It rests with the Government of India to accept, reject, or modify the recommendations that have been submitted in this address.

22. Mr. Edmonstone desires however to add that the instruction of the *hukeems* and other native practitioners in the art of vaccination should never be lost sight of. Wherever the people have been led to believe in successful vaccination as a sure protection from small-pox, and native *hukeems* and others shall accept it as a part of their practice, the Government will have accomplished its proper task, and may retire from the field as it has done in other instances.

23. In regard to the third point of enquiry, I am desir- ed to invite attention to the concurrent opinions of Doctors Pearson and Christison. They unite in very strongly advising that the establishment shall be *quasi*-permanent; that vaccinators must be *instructed* before they can be efficient; and that no dependence can be placed on persons casually and temporarily employed. Neither of these experienced officers thinks that there is any necessity for admitting vaccinators to pension. The Lieutenant-Governor concurs in their views.

24. It will have been seen from the schedules of establishments embodied above, that differential rates of pay have been proposed for the native superintendents and the vaccinators during the five working months of the year, and the seven months of recess. The only exception is in the Hills, where, to use Dr. Pearson's words, "are the seed-beds, the nurseries from which our supplies (of virus), retaining their activity unimpaired, are raised;" and where there is work for the establishment more or

less all the year round. During the seven months of the recess, the vaccinators of the Agra Circle are required to attend the Medical School at that station; and the Lieutenant-Governor would recommend that the vaccinators of all other circles be required, as a condition of their service, to attend the several Dispensaries as apprentices, there to receive instruction in class by the officer in charge of the Dispensary as compounders, dressers, and hospital assistants. This measure will raise up a useful class of men, without at all interfering with the progress of vaccination.

25. A few words may be called for regarding the suggestions of the Medical Board, which are epitomized in the 4th paragraph of the Assistant Secretary's note. The Lieutenant-Governor has no objection to offer to the 3rd and 5th of these suggestions,—namely, that (3) subsistence allowance be given to indigent persons bringing their children to be vaccinated; provided, however, that they remain until the vesicle shall have come to maturity, and the success or failure of the operation may be judged; and that (5) native gentlemen be encouraged to promote vaccination by their influence and example. But, in respect of the other suggestions, His Honor would remark (1) that vaccination cannot be extensively practised in a Dispensary, because the Dispensary is attended only casually by travellers, or by occasional visitors at the Sudder station, who apply for medical treatment, or by fixed inhabitants of the place; that (2) the attendance of a native vaccinator in the Collector's camp will be useless, unless the Collector exert his influence; and, as is well known, the advice of an officer in the position of a Collector will be regarded as an order, and the whole proceeding will have the appearance of indirect coercion; and, *lastly*, that the proposal to make submission to the vaccine operation a condition of admission to the service of

Government is, to His Honor's thinking, wholly inadmissible. If vaccination is not to be propagated, except by compulsion, the effort had better be abandoned altogether.

I have, &c.,

G. COUPER,

*Secretary to Government,*

*North-Western Provinces.*

**No. 21.****REPORT ON THE FOOD OF THE INHABITANTS OF  
THE DISTRICT OF BIJNOUR.**

By J. L. STEWART, Esq., M. D., *Civil Assistant Surgeon.*

IN reporting on the food of the district of Bijnour, (in accordance with Circular No. 53, dated 15th February, 1862, of the Principal Inspector-General, Medical Department,) I have been led to enter very fully into an account of the food-crops and other sources of alimentary supply in use for two reasons;—*firstly*, because although much useful information on such matters is scattered through various works, especially those of Ainslie (*Materia Medica of Hindoostan*), Roxburgh (*Flora Indica*), Royle (*Illustrations of Himalayan Botany*, &c. &c., Hamilton Buchanan (*in Montgomery Martin's Eastern India*), and that valuable, though unfinished work, Elliott's *Supplement to the Glossary, North-Western Provinces*, yet I am not aware of the existence of any succinct account of the alimentary substances in use in any single district in the North-Western Provinces; and *secondly*, because my attention has been very much directed to an allied subject,—*viz.*, the Botany of the various districts in which I have been stationed since I came to India.

The latter of these reasons induced me to take up the subject *con amore*, and the former to elaborate the details, as far as circumstances permit; and I may safely say that be the merits or demerits of this essay what they may, it has at least the property of originality, in so far as, except when the reverse is definitely intimated, every fact in it has been arrived at by enquiries made of the people themselves, mediately or immediately, as I shall detail more fully afterwards.

I should feel inclined to apologize for the multitude of small facts that are crowded into *this Report*; but

as the subject is essentially one of details, that seems superfluous.

The zillah of Bijnour constitutes the north-west corner of Rohilkund, lying in the angle formed by the Ganges here running nearly due south, and the Sewalik Range running north-west and south-east. These form the western and northern boundaries of the district, which to the south and east is not geographically divided from the neighbouring zillah of Moradabad. It is of a very irregular polygonal shape, with a projecting point stretching to the north; its greatest length from north to south being about fifty-five miles, its extreme breadth from east to west about forty-five, and its total area 1,831 square miles.

The chief Civil divisions of the district are the following : To the north nearest the Sub-Himalaya, the Tehseels of Nujeebabad (more western) and Nugeena ; to the south, Dhampoor (more eastern) and Chandpore, both conterminous with the Moradabad district ; and Bijnour between Nujeebabad and Chandpore, and, like both of these, bounded on the west by the Ganges. The number of inhabitants in the district was calculated some years since at 6,70,000 ; nor has it probably altered much since then, and, so far as I can learn, the Hindoos are to the Mussulmans as two to one nearly.

On the western edge of the district along the bank of the Ganges there is, in many places, a strip of *khadir* ; i. e., of low, flat, alluvial land, which is much better adapted for some crops, (e. g., rice, sugar, various gourds and tobacco) than the lighter soil which prevails in many other parts. But even of the latter the western section, for some miles distance inward from the Ganges, is much more sandy and porous than the rest, especially from about the town of Bijnour southward, which tract is elevated into a ridge ; and a greater amount of certain crops (e. g., *bājra* and *moth*) is grown there than on the flatter, moister, more loamy parts to the eastward. The tract immediately under the

Sewaliks, which is locally called *Bhood*, is of varying width, but generally eight or nine miles broad, and is almost wholly unreclaimed, with the exception of patches here and there which are under cultivation. This state of things, which is said by local tradition only to have originated when the district was overrun by the Mahrattas some generations since, now depends in part on the fact that, like all jungle-tracts in the Sub-Himalayan region, this is, for several months in the year (during, and especially after the rainy season), excessively unhealthy, and habitable throughout the year by none but members of a tribe called *Boksas* (whose head-quarters are in the Patlee Doon, between the Sewaliks and the Himalaya Proper, and beyond this district), and who appear to have acquired a certain immunity from the effects of malaria; a few families of other tribes,—Chowhans, Goojurs, &c.,—remain here part of the year, but retreat in the sickly season.

(Whether the *Boksas* are the same as the *Tharoos*, or *Tharwis*, who inhabit the similar tract to the east of this, north of Bareilly, &c., as both are said to have a Turanian physique, although the *Boksas* at least have no distinct language, like the other scattered tribes of that family, or whether, as they themselves assert,—see Elliott's Glossary, *sub-nomine*,—they are of Rajpoot descent, which appears unlikely, and of what extent and nature is their apparent immunity from the ordinary effects of malaria, are questions of interest, and which I hope personally to have some opportunity of enquiring into.)

Within the district there are a few perennial streams, including the classic *Málin* (of the *Sacoontula*), but the waters of these are not much taken advantage of for irrigation purposes, there being only two small irrigation canals, both in the eastern part near *Nugeena*.

The agricultural implements and processes are the same as in other parts of the North-Western Provinces.



There would appear to be no difference in the food of the inhabitants of the various parts of the districts, further than slight variations depending on the amount of the several crops raised, except in regard to the Boksas, and others who inhabit the Sub-Sewalik jungly tract, who employ largely as food some wild plants not found in or used by the inhabitants of the other parts.

In order to take a complete view of the articles used as food, &c., I shall divide the subject as follows:—

1, cereals; 2, pulses; 3, gourds; 4, *tarkári*; 5, greens; 6, animal food and oils; 7, spices and condiments; 8, sugarcane and its products; 9, sweetmeats; 10, fruits; 11, wild plants used as food; and 12, the use of tobacco, betel-nut and spirits. This division, although not in the least scientific, is the most practical and manageable I can devise, and that is probably the chief consideration to be attended to.

Since it will be necessary to note the season of each of the crops grown, as to some extent bearing on the nature of the food at different times of the year, I may premise that here (as throughout the plains of India) there are two crops a year,—the *Rubbee*, sown in autumn and reaped in spring, and the *Khureef*, sown in summer and reaped in autumn. The Cucurbitaceous (gourd) crop may be reckoned as a segment of the latter, but of it the sowing, and especially the gathering, take place earlier than those of the hot-weather cereals, &c.

#### 1.—CEREALS.

As might be expected, and has been often remarked, the cereals (as well as many of the wild herbaceous plants) of the cold season,—*i. e.*, *Rubbee* crop in the North-Western Provinces,—bear a much greater resemblance to those of temperate climates than do the cereals (and weeds) of the hot-weather crop.

By far the largest and most important products of the *Rubbee* in this district are *gehun* (wheat, *Triticum Vulgare*,

Willd.) of several varieties, the chief being the *awad* and the *awaliss*, red and white, and *jau*, (barley, *Hordeum Hexastichon*, L.) An English farmer would be astonished at the extent to which is carried in India the system of growing mixed crops of several different kinds, to be gathered either together or separately; and amongst these wheat and barley are often sown, reaped, ground, and made into bread together, under the name of *gujei*.

Wheat is also often grown, and still oftener ground along with a pulse (*channá*, see Sect. 2.) in a similar way under the name of *gochní*; and a like compound crop and meal of barley with a pulse (*channá*, *mattar*, or *masúr*) called *bijrá*, is also in common use.

A good deal of *chéná*, (*Panicum Miliacum*, Willd.) is grown at this season, but it yields a much less valuable grain than either of the two former.

The consumption of all of these is naturally larger in spring and summer, while they are abundant and cheap than at other times.

The cereals of the summer crop are much more numerous, and may be given as follows, with an approximation to the order of their commonness in this district:—

*Dhan* (rice, *Oryza Sativa*, L.) with many varieties, the two commonest being *sáli* and *mínjji*.

*Bájrá*, (*Pennisetum Spicatum*, Willd.)

*Sámá* or *Sámei*, (*Oplismenus Frumentaceum*, Rox.) often mixed with *kútki* (*Panicum Miliare*, Lam.)

*Makká*, or *burá Joár*, (maize, *Zea Mays*, L.)

*Joár*, or *chhotá Joár* (*Sorghum Vulgare*, Pers.); its ear called *Gophá* or *Bhúttá*.

*Mandwá* or *Marwá*, (*Eleusine Coracana*, Gaert.)

*Kukni*, or *Kangni*, (German millet, *Pennisetum Italicum*, R. Br.)

*Kodrám*, or *Kodon*, (*Paspalum Scrobiculatum*, L.)

The term *nanhá anáj*, or *nanhá dáná*, small grain, is applied to all grains, except wheat, barley and rice, as

not only are the individual seeds of all the others, except maize, small, but they are also looked on as much less nutritious than these three.

Most of the rice used is eaten unground (both husks having been previously removed by pounding with a large wooden pestle) as *Bhūt*, boiled in water, to be afterwards eaten with pulses and condiments, as *Lijri*, which is often a combination of rice with pulse, generally *rāsh* (see Sect. 3), sometimes with *bājra*, put into hot water and boiled together, and occasionally as *thār* boiled with milk, to which is added sugar or *gaur* (see Sect. 8) by the well-to-do. The name *Lijri* is applied also to a mixture of *joār* and *bājra*, or of wheat and pulse boiled together.

When rice is to be used as bread, (as is generally the case with *sāthi* and other cheap large-grained kinds which are reckoned coarse,) it undergoes only one husking in the mortar, and the inner husk is left on to be ground up in the flour called *baghār*, as an economical measure. When thus used, however, it is said to be apt to produce indigestion, colic, &c.

Great part of the maize grown is consumed unground the ripe head (*bhūttā* or *lūkrī*) being roasted, and the seeds then eaten off the cob (*chūchī*); but much of it is also ground into flour and made into bread, although very much less is here used in this way than in the Punjab. Most of the other grains are occasionally eaten unground as *chāmrāl*.

This term is generally supposed to be confined to husked rice but here at least; it is applied also to *kukni*, *sāmā* and *kodon*, as in all these the husk adheres so closely as to require the *mūsāl* (large wooden pestle) to remove it; these grains thus occupying an intermediate position between *joār*, *bājra*, &c., in which the husk is non-adherent, and wheat and barley, from which even the *mūsāl* cannot remove it.

With these exceptions all the cereals are for the most part eaten as bread; some of them,—e. g., wheat, barley,

rice and *bájrâ*,—generally unmixed; but besides the mixtures, *gujê*, *gochní* and *bijrá*, mentioned above, many combinations of the flours of especially the “small grains” with each other, or with various pulses, are in frequent use, particularly during the rainy season. The more common of the combinations containing pulses are wheat with a little *channá*, maize with *másh*, and *bájrâ* or *joár* with *moth*, the grain being generally about three to one of the pulse meal. The reasons assigned for the use of these mixtures are, that not only are they more palatable, but also more filling. Some of them however,—*e. g.*, maize with *másh*,—are asserted to be *sakht*; *i. e.*, to tend to produce constipation.

Of all the cereals, wheat and rice are in far the highest repute, as being at the same time digestible and nutritious, and, according to the season of the year, one or other is generally the staple food of those to whom a slight difference in price is no great object.

There appears to be no specific objection to barley as compared with wheat, but that here, as in other countries, it is not esteemed such a valuable grain, is evident from the fact that it is thirty to fifty percent. cheaper, and that the amount of it grown is not proportionally much greater, although it requires less labor and watering than wheat, and yields considerably more produce.

Definite objections are however made to some of the *nanhá anáj* of the *Khurcef* crop. Thus *bájrâ*, although considered nutritious, is said to be very heating, and to produce diarrhœa; and but little of it is consumed in the summer, although in winter it is a favourite food, especially with butter-milk (*chhách*). Similar objections are made to *kukní* and *sámá*.

That *kodon* at times produces delirium and vomiting, is universally believed in the district, and I find that various authors mention a similar phenomenon as occasionally occurring in many parts of all the three Presidencies. The:

natives generally hold that, with and among the ordinary *kodon*, and undistinguishable in appearance from it, grows a kind they call *majná* or *majní*, which produces the above effects; but it has with greater probability been suggested, that these depend on the use of the new grain under certain conditions. These results, however, cannot be common here, as a very intelligent old gentleman of the district informed me that he had never seen a case.

Maize and *joár* are looked upon as less objectionable than the other "small grains," and the latter is considered very palatable and less heating than the former.

I may note that, besides being grown for its grain, *joár* is frequently sown closely (as *charé*), so as to run very much to stalk, and then the whole plant is cut when barely ripe and used for fodder. Its stalks, also, as well as those of *bájrá*, are used as fodder, under the name of *karbí*, as are the maize stalks under the name of *makrerá*.

Although it is not a cereal, this may be the fittest place to note *kotoo*, (*Fagopyrum Esculentum*, Moench.) The seeds of which are largely imported from the Himalaya. They are not used here regularly as an article of diet, but only for a day or two at a time during the *bart* (fasts) of the Hindoos, being among the *phaláhar*; i. e., kinds of food allowed to be eaten at such times. This seed is not vend- ed by the ordinary grain-dealers but by *pánsáris* (drug- gists), and sells at about  $1\frac{1}{2}$  anna a seer ( $1\frac{1}{8}$  d. a pound). It is not considered very palatable, and is said to be heating.

## 2.—PULSES.

The cold-weather pulses are these:—

*Channá*, (*Cicer Arietinum*, L.)

*Kasá*, or *mattar*, (*Lathyrus Sativus*, L.)

And *Masúr*, (*Ervum Lens*, L.)

These are frequently grown as a mixed crop, under the name of *khabarrá*, when they are gathered and used to- gether.

*Arhar* (*Cajanus Flavus*, DeC.) is reaped with the cold-weather crop, although it is sown with the *Khureef*.

The pulses of the hot-weather crop are the following :—

*Másh*, or *oorud*, (*Phaseolus Roxburghii*, W. and A.)

*Moong*, (*Phaseolus Mungo*, L.)

*Moth*, (*Phaseolus Aconitifolius*, Jacq.)

*Lobiya*, (*Dolichos Sinensis*, L.)

*Tohar*, (*Cajanus Bicolor*, DeC.)

*Kauri*, *shámsúndari*, *phalíguár*, *kacchúr*, (*Cyamopsis Psor-aloides*, DeC.) mostly, however, used as *tarkári*, not as pulse. The two last are generally grown round the edges of fields of other crops; and several of the first four are frequently grown as mixed crops, but are gathered and used separately. No other Leguminosæ are raised in fields in sufficient quantity to effect the diet of the mass of the population, although several others, as *sem* (*Canavalia Gladiata*, DeC.) are commonly cultivated in gardens.

Some of the pulses (viz. *másh*, *moong* and *masúr*) are often eaten unhusked by the poor; a few, e. g., *channá* and *mattar*, are occasionally ground into flour, called *besan*, and made into bread, either alone, or in combination with some of the cereals, as already stated. Unmixed pulse bread however is very seldom, and only locally eaten, sometimes alone, but generally with vegetables, &c., and a much smaller quantity of it is said to satisfy than of bread made from grain.

Many of the pulses (viz. *channá*, *mattar*, *moong*, *moth* and *lobiya*) are frequently eaten parched, under the name of *chabená*, especially by people on a journey, when they have not time to cook food. But by far the greater part are, after steeping in water for a longer or shorter time to remove the husk, boiled in water, either alone, or with onions, assafoetida, turmeric and spices, according to the consumer's purse, and eaten with bread or boiled rice.

*Másh*, *moong* and *channá*, are in most repute of the pulses, but all of them are apt to produce flatulence and colic;

—*māsh*, especially if eaten unhusked, having the worst character in this respect.

*Māsh* and *moong* are generally used separately, but two or more of the others are often eaten in combination; *moong* and *arhar* are reckoned good for invalids, and are probably most digestible; *moth* and *masūr* appear to be in least repute, as tending to cause heat and thirst, and the latter is said to produce eruptions, if too freely used.

*Kasā* or *mattar* (under another name, *kisāri*) has been said in certain districts to produce a particular form of paralysis,—a probability first noted I think by Hamilton Buchanan; but in this district, where it is largely cultivated, I cannot find that even a suspicion exists of any such effects ever being produced by it.

### 3.—GOURDS.

The Cucurbitaceous plants grown in this district are as follows:—

- Gol Kaddū*, (*Lagenaria Vulgaris*, Ser.)
- Laukā*, or *kaddū sufed*, (*Cucurbita Pepo*, L.)
- Tendūs*, (*Cucurbita Lobata* ?)
- Tarbiz*, (water-melon, *Cucurbita Citrullus*, L.)
- Pethā*, (*Benincasa Cerifera*, Savi.)
- Kharbūzā*, (musk-melon, *Cucumis Melo*, L.)
- Kachrá*, (unripe,) and *phoont* (ripe,) (*Cucurbita Momordica*, Rox.)
- Kakri*, (*Cucurbita Sativus*, L.)
- Khirā*, (*Cucurbita Utilissimus*, Rox.)
- Karelā*, (*Momordica Charantia*, L.)
- Ghīā Tori*, (*Luffa Pintandra*, Rox.)
- Kāl Tori*, (*Luffa Acutangula*, Rox.)
- Chichindā*, (*Trichosanthes Anguina*, L.)

Some of these, as the *kharbūzā* and *tendūs*, do not grow well in the higher, dry and sandy parts of the district, and are mostly cultivated in the low-lying *khadir*, and all of them are sown before, and ripen during the rains. They

may, so far as their use in diet is concerned, be divided into two classes; *first*, the sweet and sweetish, comprising *kharbúz* (musk-melon), *tarbúz* (water-melon), and *kachrá*, which are eaten raw, the last only (which is said to produce fever, if eaten in quantity) is occasionally cooked. The *second* class comprises all the others, which are either bitter (some of them intensely so before cooking) or insipid, and which, with the exception of *kakrí*, *khírá* and *tendús*, which are eaten raw, are always cooked, with oil, salt and spices.

An immense quantity of this kind of food is consumed in the season by the natives, and it is said that a man will eat as much as 10 pounds of water-melons, &c. at a sitting.

The *Gol Kaddú* keeps well for three or four months, if hung in the air, and *karelá*, if sliced and dried, will also remain good for many months; but all the others of this class spoil rapidly, and must be used at once.

#### 4.—TARKA'RI.

This name is applied to roots and fruits generally boiled in water with salt and spices, or cooked with oil, &c.

The following are the roots thus used:—Several species and varieties of *Colocasia* and *Arum*, known by the names of *urwí*, *ghooyán*, *kacháru*, *kándá*, *mondhá*, *zaminkand*. These, which are cultivated with the cucumber crop, constitute the nearest approach to the potato eaten by natives, and great quantities of them are grown and used. They are said to tend to cause constipation, and with the view of obviating this, a little *ajwáin* seed (see Section 7) in oil is frequently added to them in cooking. They are dug in autumn, and remain good for five or six months; *zaminkand* (*Arum Campanulatum*, Rox.), which is not commonly grown, and ripens after the others, being the only one that keeps well in the ground.

These are supplemented in the cold-weather by the roots of *shakarkand* (*Batatas Edulis*, L.)



*Milt* (radish, *Raphanus Sativus*, L.), *gájur* (carrot, *Daucus Carota*, L.) and *shalgham* (turnip, *Brassica Napus*, L.) are largely consumed, especially the two first. They are first boiled in water, then squeezed out, and afterwards cooked with spices and *ghí* (see Section 6).

There is a still larger consumption of *ganthíyá* or *páyáz* (Onion, *Allium Cepa*, L.) and *lahsan* (garlic, *Allium Sativum*, L.) The latter is only eaten cooked; the former both cooked and raw; and one person will eat as many as three or four, some even up to ten raw onions, of which most classes are exceedingly fond.

Some castes of Hindoos, (viz. Brahmins and Bunyas,) never touch onions, garlic, turnips or carrots, the somewhat fanciful reason given being that, in colour or consistency, all of these are like flesh, which their religion forbids their eating.

Under this head come the young pods of several Leguminosæ, viz. *lobiyá* (*Dolichos Sinensis*, L.), *phalíguár* (*Cyamopsis Psoraloides*, DeC.) and *sem* (*Cunavalia Gladiata*, DeC.), already enumerated among the pulses, Section 2. These are cooked with water only, a little *ghí* being but rarely added. The fruit (*sengra*) of the radish is likewise thus cooked and eaten.

The unripe *kellá* (plantain, *Musa Paradisiaca*, L.) is used as *tarkári* by Hindoos only.

The fruit of the *singhara*, (water-cultrops, *Trapa Bispinosa*, L.) which is extensively grown in tanks throughout this district as in most parts of India, is consumed largely, both raw and cooked, and especially by the Hindoos, as it is included among the *phaláhar*, or food allowed to be eaten during their fasts.

*Bhéndá torí* (*Abelmoschus Esculentus*, W. and A.) and *baínján* (*Solanum Melongena*, L.) are grown in very large quantities, and their fruits are cooked, the former generally whole, the latter sliced, with *ghí* and spices. The latter is asserted to be heating, but this does not prevent

its being a favorite article of food with all classes. It is only used fresh ; but the former, if split open and half-dried, keeps for several months.

*Kula bāns*, the young shoots of the bamboo, *kachnār-ki-kalli*, the flower-buds of (*Banhinia Variegata*, L., &c.,) and *semal todā* or *simlautā*, the flower-buds of the *semal* (*Cotton-tree*, *Bombax Heptaphyllum*, Cav :) are all used extensively as *tarkari*, although the trees from which they are obtained are not raised for the purpose of producing them. The bamboo grows wild in the jungles in the north of the district as does the *semal* while all three are commonly planted throughout, the bamboo for its uses in building, &c., and the two others for ornament, the wood of neither being of much use while their flowers are very showy.

All these *tarkaris* are eaten in curries or with flesh or bread, and constitute one of the staple classes of food of the Natives. Although many of them are not highly nutritious, yet they are mostly sapid, wholesome and digestible, and form a chief source of supply of fresh vegetable juices necessary to the system.

#### 5.—GREENS.

Leaves or young stems of herbaceous plants, when boiled with a good deal of water, are called *sag*, and when cooked with merely as much water as to prevent their being burned, are named *bhangā* or *bhangiya* (from *bhunā* to be fried), many of the leaves thus used are got from plants not grown primarily for this purpose, *e. g.*, those of *lobiyā* (*Dolichos Sinensis*, L.) and *channā* (*Cicer Arietinum*, L.) which are grown for their Pulses (*see* Section 2), those of *sarson*, (*Brassica Campestris*, L.) raised for its oil-seeds (Section 6) and of *kachālu*, &c., (the Arums, Section 4), grown for their edible roots.

The following are grown expressly to be used as greens :—

*Methi*, (*Trigonella Fœnum Græcum*, L.).

*Pālak* (*Beta Bengalensis*, Rox.), not so much used here as by Bengālis.

*Khurfa* (*Portulaca Sativa*, L.).

*Chaulai* (*Amarantus Polygamus*, L.).

*Soyá* *Anethum Sowa*, Rox.).

And *Gobi* (cabbage, *Brassica Oleracea*, B. *Vulgaris*, DeC.) said to have been introduced since the English came into the district.

Of these probably *ság méthi* and *pálak* are the most in repute; but besides those enumerated, the wild plants which are constantly or occasionally used as greens are so numerous, that with the other uncultivated plants of which some part is eaten, I have put them into a separate Section (11).

All of the above are either cooked alone and eaten as a relish with bread, &c., or cooked with flesh, rice, pulse or flour.

The members of this class are generally much less nutritive than the last, but they are wholesome and filling, and are mostly so insipid as not to tempt to an indigestible amount, and none of them are considered by the people as endowed with any special qualities beneficial or noxious.

## 6.—ANIMAL FOOD AND OILS.

Meat in any shape is forbidden to some classes of Hindoos (*viz.*, Brahmins and Bunyas), and the flesh of kine and buffaloes to all Hindoos; but with these exceptions, all classes eat flesh when procurable. Its price, however, is very seldom less than an anna ( $1\frac{1}{2}d$ ) a pound, and as the laborer can always get three or four times the weight of flour, &c., for the same sum, except at an occasional feast when he gorges himself with meat, it is used rather as a relish with other food, and that but seldom. Thus, with ten or twelve *chittacks* (20 or 21 oz.) of bread or rice with pulse, he will eat one and a half or two *chittacks* (3 or 4 oz.) of flesh. It is generally fried with *ghi* and spices, and a little water, or cooked and eaten with rice as *piláo*.

The Mussulmans of the lower classes are said to affect Beef, and Hindoos Mutton, while the wealthier prefer goat's flesh; but the consumption of much meat of any kind is considered by Natives to cause boils and pimples, and a tendency to inflammation.

In the wilder parts, in the north of the district, the meat of Deer, Hare, Partridges, &c., is attainable at times by even the poorest, but not in quantity.

Very few fowls are reared in the districts, especially since the mutiny when, say the Natives, the "avenging" columns cleared out all the stock, and the price, four to six annas (6 to 9 pence) a piece, is much too high for the laborer. The Mussulmans keep but few fowls, while the higher castes of Hindoos abstain from them altogether, although they are not, I believe, positively forbidden.

Fowls being scarce, it is almost unnecessary to state, that eggs are not very common or available to the poor. They are forbidden to some castes of Hindoos, (Brahmins and Bunyas,) but, when used, are fried with *ghi*, water, and spices, and eaten with bread or rice.

Milk is very rarely drunk fresh (goat's milk is occasionally so used), as it is said to give *hik* (hiccup). When boiled down to about one-fourth of its bulk, it (*máwá*) is often eaten, but this is mostly used in making sweetmeats (*see* Section 9).

When milk is heated at night and a little old curd added (*amkhatái*, Section 7, is employed when curd is not at hand) the whole becomes *dahi* (curds) by morning.

This *dahi* is very largely eaten by all classes at all seasons, with either salt and pepper, or sugar. Cheese is not made or used by any class of the inhabitants.

By churning (*biloná*), which is effected by a stick twirled by a cord twisted round it, *dahi* is converted into butter, and skimmed milk (*chháchi*), part of which is drunk, but it is almost valueless even in this poor country.

Butter is not employed fresh in cooking, nor is it even salted to be thus used, but it is sometimes eaten fresh by those who can afford it, mixed with *boorá* (coarse sugar), to the extent of three or four ounces alone, and as a morning meal!

As the native of India generally is not a flesh-eater, and so wants some other source whence to derive the oleaginous constituents necessary for health, the consumption of animal and vegetable oils is very large. The most important of the alimentary oils is *ghi*, which is simply butter, clarified by heating for twenty minutes or half an hour, which renders it capable of being kept for many months as good as when fresh prepared. In this state, although it has often a somewhat rank flavour when uncooked, yet if it has been well prepared and kept so as not to become rancid, it is a wholesome article of food, and in many dishes quite undistinguishable from butter. It appears probable, that the circumstance of butter being in India prepared in this way for keeping, instead of being powdered or salted as in England, depends merely on the fact that salting is a dearer process than clarifying. Thus prepared, it is by those who can afford it, added, in preference to the vegetable oils, in considerable quantity, to every dish of vegetables, curry, flesh, &c. &c., eaten by the natives, and a very large amount is consumed in sweetmeats.

The makers of *ghi* in the country to the eastward are generally *Ghosís*, but in this district that caste is not numerous, and it is prepared for (home consumption and) sale to the *Bunyas* who retail it, by cow-keepers generally, who are of many castes. The district *hardly* supplies enough for its own consumption, a good deal being imported from the Hills.

Several of the Mustard family are extensively grown in the district, and from the seeds of two of them *sarsán*, (*Brassica Campestris*, L.) and *rái* (*Brassica Juncea*, L.) the oil is expressed, to be used (for burning and) in cooking,

but only by the poorer classes. In preparing food, is much more frequently employed the oil of *til* (*Sesamum Indicum*, L.) which is milder in flavor, and is a common ingredient of *tarkári*, sweetmeats, and pickles. These vegetable oils however are only eaten as a measure of economy, the price of any of them ranging only about half to two-thirds of that of *ghí*, of which the average rate is one rupee for two seers (*6d.* a pound.)

The Oil-cake (*khal*) of all of these oil seeds is used for feeding cattle (as the similar refuse of rape, &c., is in England); but is only given to those that are in milk. The "cake" of the *til* is also frequently eaten by the poor, mixed with *goor* (Section 8) and uncooked, but never so as to constitute more than say one-fourth of the whole meal taken, the rest being made up of bread, &c.

The Castor oil plant, *arand* (*Ricinus Communis*, L.) is by no means frequent here, but a few shrubs are seen occasionally about cottages, and the oil of the seeds is extracted by the poor and used in a similar way to the above in sweetmeats and in *tarkári*.

## 7.—SPICES AND CONDIMENTS.

A much larger number and greater amount of spices (*musálah*) are consumed by the natives of India than by similar classes in Europe, this probably resulting in great part from the fact that the food of the former is of a much less exciting nature, which renders necessary the addition of some stimulant.

The spices which are imported for use in this district are the following:—*Hing* (*Assafoetida*) from Affghanistan; *adrakh* (Ginger) from the lower Himalaya; *huldi* (Turmeric) from these and the eastward: *zirá* (Cummin) from the latter, and *golmirch* (Black Pepper,) and *illachi* (Cardamoms) from the Eastern Islands and the south of India.

The indigenous spices are, *lal mirch*, Chilli (Red Pepper, *Capsicum Annuum*, L.); *sounf* (Fennel, *Foeniculum Vulgare*,

Gœrt: ), *dhiniya* (Coriander, *Coriandrum Sativum*, L.); and *ajwain* (Lovage, *Ligusticum Ajowan*, L.), all of which, especially the first, are cultivated in large quantities, for home consumption.

A mixture of three or four or more of the above spices in various proportions, according to fancy, is added to almost everything eaten by the Natives (a larger quantity being used with meat than with most other kinds of food); frequently in some such combination as the following:—Cumin and Fennel, of each one part, Coriander and Ginger, of each two parts, and black or red Pepper and Turmeric, of each four parts. From one to four annas ( $1\frac{1}{2}d.$  to  $6d.$ ) worth of spices is eaten by an adult during the month.

There is no doubt, that the free use of these spices is from their carminative and stimulant effect indicated, when the food is so largely made up of non-stimulant and fibrous or crude vegetable substances—the former tending to sluggishness, and the latter to indigestion,—as is that of the Natives, although doubtless the gratification of the palate has much to do with their liberal consumption.

Salt is here, as throughout the rest of the world, an almost universal ingredient in the food of the people.

Various composite condiments are very largely used, probably from the craving for something sapid to be added to the tasteless bread or rice which constitutes the main part of the Native's diet. Their study is rather more recondite than that of the spices, especially as all of them are prepared at home, and there are considerable variations in the way of making them, but reliance may, I think, be placed on the following information regarding the three classes in which they are comprized, viz., *khatái*, *áchár* and *chutni*.

(a) *Khatái* (literally "sourness") or *khatái dál* is generally prepared from the unripe mango, which is cut into two, the stone extracted, and a pinch or two of *masálah* added to each slice. These are then put aside, and will keep for many months. This *khatái* is not used in large

quantities at a time, but the aggregate consumption must be very large, as it is said to be almost universally employed, a little being added to each dish of pulse, *tarkári*, flesh, &c., &c.

A less common kind of *khatái* is made by adding to vinegar some ginger, &c., and a little Sugar-cane juice.

(b) A large amount of *achár* (which is nearly equivalent to "Pickles") is consumed. The vinegar, for this and other purposes, is prepared by simply putting aside the juice of the sugar-cane till it undergoes the acetous fermentation.

*Achár* may be divided into three classes, viz.:—1,—That which is prepared with vinegar only; 2,—That which is made with oil; and 3,—That which has neither oil nor vinegar.

1. That made with vinegar will keep for a year, but is not in such common use as the others. The fruits, &c., treated in this way are ripe mangoes, plaintains, *karoundá* (fruit of *Carissa Carandas*, L.), *karelá* (*Momordica Charantia*, L.), which is first slightly cooked, radish, turnip, carrot, *kálá báns* (young bamboo shoots,) *sohánganphali* (fruit of the horse-radish tree). The seeds of *rái* (*Brassica Juncea*, L.) are often added to one or other of these.

2. Mangoes in oil, to which is added cumming, fennel mustard, &c., and limes in oil, with spices, will keep for any length of time, and are very largely used.

3. The young pods of several of the Leguminosæ already mentioned under the head of *tarkári* (Section 4) are prepared with spices, become sour, and are used as *achár*. These will only keep for two or three weeks.

(c). *Chutni*.—Vinegar *chutni* is made by adding to *khatái* (or in its place, tamarinds, *karoundá* or *kait* *Ferónia Elephantum*, Corr :), Vinegar, Salt, Red Pepper, Coriander and Cummin. This will keep for any length of time, while for daily consumption is often used *khatái*, with mint, salt, &c., added to it.



Both *achār* and *chutni* are used in the same way as *khatāi*, a little being added to vegetables, pulse, &c., &c.

### 8.—SUGAR-CANE AND ITS PRODUCTORS.

A great deal of Sugar-cane is grown in the district, of which it formerly was, and to a less extent still is, the staple export, the diminution being chiefly caused by the Ganges Canal, which has enabled the cultivators in the Doab to grow much larger quantities than before of this, which requires the most water of any crop.

Very little of the cane grown here is of the *poundā*, long, thick, white kind, which is the best for eating, still, much of what is raised, although quite inappreciable as compared with the amount used in the manufacture of sugar, is chewed in the raw state. A man will eat eight or ten stalks (*gunnā*) of sugar-cane, the cost of which may average one pice ( $1\frac{1}{2}$  farthing) and, when so large a quantity as this is taken, it serves to satiate hunger, so that a smaller quantity of the ordinary food is needed for that day.

The juice of the cane when heated becomes thick and is called *goor* (often erroneously translated treacle). This is frequently eaten alone or with milk, and immense quantities of it are consumed in sweetmeats. It keeps well enough for seven or eight months, but invariably spoils in the rains, unless the jar containing it is packed among grain or chaff, so as I presume to prevent the access of air.

In the manufacture of sugar, the juice of the cane is heated to a less degree than when *goor* is to be made, and by the addition of a cold infusion of *chukla* (the bark of a tree brought from the Hills, which I cannot with certainty identify, but it may be that of *Myrica Sapida*) and *sajji* (impure Carbonate of Soda), it becomes *rāb* (syrup). Into this is put a quantity of *sarwali* (*Vallisneria Spiralis*, or more probably a *Potamogeton*), more *sajji* is added, and by degrees *khānd*, coarse sugar to be afterwards clarified by boil-

ing into *boorá*, *chini*, *misri*, &c. crystalizes, and *shirá* passes off. The *shirá*, which has still a good deal of saccharine matter left in it, (but apparently, as it is said to keep for an indefinite time, not enough to cause fermentation) is used extensively for making spirits, for mixing with tobacco for the *hooka*, and by the poorer classes for making *sher-bets*.

No sugar is in this district made from the juice of the *khajúr* (*Phoenix Sylvestris* Rox.), although the tree is common in some parts.

#### 9.—SWEETMEATS.

Of these, comprizing *pukwán* and *mithái*, a great quantity is consumed, as there are not only in every tolerably extensive village shopkeepers (*húlwái*), whose trade it is to make them, but they are largely prepared for home consumption. The principal constituents are coarse sugar, *góor*, oil, flour, and *til*, and other seeds, and the chief varieties are as follows:—

Of *pukwán* the essence appears to be flour cooked in *ghi*, for which oil is substituted by the poor. The chief kinds are 1, *púri*, made of the finest flour (*maidá*); 2, *kacháori*, in which a little pounded pulse (of *oorud* or *chaná*) and spices are mixed with the flour; and 3, *halwá*, which consist of flour with sugar, cooked in oil and water, and made into balls.

The *pukwán* only keep for one day, and are in great request for travellers, and as being lawful food in certain fasts of the Hindoos.

*Khajá*, which is a sort of hybrid between *pukwán*, and *mithái*, is made by mixing a little oil with fine flour, kneading it well with water, adding some coarse flour, cooking in *ghi*, and then, in order to sweeten it, dropping into *cháshni*, which is a syrup made by boiling coarse sugar in water.

Of *mithái*, it is more difficult to give a comprehensive definition, beyond the fact that in each of the kinds of it

there is (as implied by the name) a large quantity of the saccharine element, generally in the form of *chāshni* for well-to-do, or *goor* for poorer people.

The chief varieties are as follows:—

1. *Batasa*, to make which *chāshni* is boiled and dropped on a cloth to harden in the form of strings; so that this is merely a kind of sugar-candy.

2. *Perá*, when milk boiled down to one-third or one-fourth of its bulk (*mārá*), is thickened with coarse sugar.

3. *Barfi*, where *chāshni* is mixed with *mārá*, and allowed to thicken.

4. *Laddú*, consist of balls made of flour and sugar cooked in *ghí*, or of flour of *channá* pulse, kneaded with water into little pellets, which are then dropped into *chāshni*. *Til ká laddú* is made by mixing with *goor* the cleaned and husked seeds of *til* (*Sesamum*).

5. *Jalebi* is prepared by making a thin pulp of fine flour with *khumir* (fermented syrup), which is dropped from a small hole in the bottom of an upper into hot *ghí* contained in a lower vessel, whence, after cooking, these are removed, and dipped in *chāshni* to sweeten them.

6. *Reori* and *til shakari*, both consist of syrup or *goor*, which has been cooked and kneaded, and had shelled and blanched *til* seeds mixed with it.

7. In *til koot* and *til buga*, the *til* seeds blanched or unblanched, uncooked or fried, are bruised, mixed with sugar or *goor*, and again well beaten without further cooking.

8. *Illáchi dāná* is made by beating cardamom (*illáchi*) seeds, and sprinkling over them syrup; so that each grain becomes coated with sugar.

9. *Pethá ká mithái* is made by boiling down sliced *pethá* (*Benincasa Cerifera Savii*, Section 3), frying it in *ghí*, and then mixing with *chāshni* and sugar.

Immense quantities of most of the above are consumed by all classes, and at all seasons, especially *laddú*, and some others in the cold weather. They may be considered as

handy and portable, although to European tastes not always very alluring-forms of the necessary saccharine and oleaginous elements of the food. No special benefits or risks are ascribed to the eating of any of them.

#### 10.—FRUITS.

By far the most common and valuable fruit is the mango (*Magnifera Indica* L.), of which there are not only many private trees in and about every village, but numerous groves, the produce of which is common property.

*Jámun* (*Syzygium Jambolanum*, DeC.) also is not an uncommon tree, and *áonlá* (*Embliea Officinalis*, Goert.), *imlí* (*Tamarindus Indica*, L.), *bel* (*Cegle Marmelos*, Corr.) *kait* (*Feronia Elephantum*, Corr.) and *lasorá* (*Cordia Myxa*, L.) are frequent in groves. While in gardens and by houses *kelá* (*Musa Paradisiaca*, L.), *toot shuhtoot* (mulberry) *karoundá* (*Carissa Carandas*, L.), *phálsá* (*Grewia Asiatica*, L.) and *aná* (pomegranate) are common. Trees of *khajúr* (*Phoenix Sylvestris*, Rox.) are frequent in the lower more loamy parts of the district.

The fruit of all of these is eaten either raw or cooked, and preserved in various ways, as detailed in other Sections; but many of them are so insipid, or even unpleasant in taste, that they can only be reckoned among the fruits of a very poor fruit-country, and come under Lindley's well-known definition of "edible, but not worth eating." The mango and plantain only are eaten in such quantity as to constitute an appreciable item in the food of the inhabitants.

The following are less common, some of them very rare in the district, there being only a few trees in occasional gardens; *ber* (*Zizyphus Jujuba*, Lam.) only cultivated extensively I believe by Pathans, *seo* (apple), *náshpáti* (pear), *bhirni* (*Mimusops Kanki*, L.), *moulsuri* (*Mimusops Elengi*, L.), *kamrakh* (*Averrhoa Carambola*, L.), *kathal* and *barhal* (*Artocarpus Integrifolia*, L. and *Artocarpus Lakoocha*, Rox.) and *kharbuzá* (*Carica Papaya*, L.).

## 11.—WILD PLANTS, WHOSE FRUITS, &amp;c. &amp;c. ARE USED FOR FOOD.

IN the northern jungly parts of the district grow wild the *sohunjuná* (horse-radish tree, *Moringa Pterygosperma*, Gaert.), *áontá* (*Emblia Officinalis*, Gaert.) and *bcl*, (*Ægle Marmelos*, Corr.) all already alluded to (Section 10, &c.,) as furnishing fruit eaten raw or cooked. The first of these also exudes from its trunk a gum, which is eaten.

The fruit of the *jharberá* (small wild *Zizyphus Jujuba*, L.) and the *mako*, *bamolán* (*Zizyphus* (*Cenoplia*, Mill.), which are both abundant everywhere, as well as of the *gúlar*, (*Ficus Glomerata*, Rox.) are eaten raw, and the last also cooked by boiling, and then frying. None of these however are very palatable or digestible, and they are only eaten "to fill the belly" by the poor.

The roots of the (*Nelumbrium Speciosum*, Willd.) *kamal kukrí*, *besendá*, which is common in tanks, &c., are dug in autumn, and afford a nutritious article of food to many. These are either boiled and strained, and then fried with oil, or are made into *achár*. The seeds also of this plant are eaten, but rather for medicinal than dietetic purposes.

The roots of *kaserú* (*Scopus Kysoor*, Rox.?), which grows abundantly in tanks and wet places, are in spring dug in large quantities, sliced and eaten, uncooked and alone. They resemble in appearance the roots of *Cyperus Esculentus* L., which is cultivated and eaten in some parts of Europe, and are considered cooling and highly nutritive; and probably their shape, &c., has, on "the doctrine of similitudes," caused restorative virtues to be ascribed to both.

The roots of *angithi* (a *Dioscorea*), are ground and made into bread by the Boksas of the jungle tract in the northern part of the district, in such quantities at certain seasons as to form a staple article of their food; and the leaves of *banpindáli*, a plant of the same genus, are used as greens in some parts.

The leaves of *chaulai* (*Amarantus Polygonoides*, L.) and *mark* (*A. Spinosa*, L.), and of *bathua* (*Chenopodium Album*, L.), and the young plants of *nali* or *lahi* (a wild species of *Sinapis* or *Brassica*), are all commonly cooked as greens, to be eaten with bread, &c.

It does not appear that the leaves of *Marsilea Quadrifolia*, L. (*gudy*) are at any time eaten here, as in some other parts of India.

Four wild species of gourds are used as food; viz., *pal-mul*, (*Trichosanthis Dioica* Rox.?), *kakora* (*Momordica Muricata*, Willd.), *khanduri* (*Bryonia Rostrata*, Rottl.), and *kachra* (*Cucumis Pubescens*, Willd.); the two first being cooked with oil, salt, &c., and the two last sometimes eaten raw, but generally cooked also.

The flowers of the *mahla* (*Bassia Latifolia*, Rox.), a tree which is by no means common in the district, are eaten raw, and possess slightly intoxicating qualities; but I cannot find that here, as in some neighbouring districts, these flowers are ever dried, ground and made into bread.

The seeds of the bamboo, when produced, which is only after intervals of some years, are never made into bread, except in the wild Sub-Sewalik tract. In times of scarcity, a great many vegetable substances are greedily devoured by the starving, which are at other times either not eaten at all, or only by the very poorest, and in very small quantities. I shall here give the names of all those that I can discover to have been thus used during the late famine (of 1860-61).

Of two plants, the roots were cooked and eaten; viz., *piyazi*, (*Asphodelus Fistulosus*, L.), which in Spring is abundant in every field, and *nifur*, *bambher* (*Nymphaea Stellata*, Willd.?) which is common in tanks.

The fruits of the following trees, which are not ordinarily used, were consumed wherever obtainable; *ambara* (*Spondias Magnifera*, Pers.), *tendu* (*Diospyros Tomentosa*, Poir.),

and *bargat* (*Ficus Indica*, Rox.), all of these grow wild in the Sub-Sewalik forests.

The stones and kernels of the *jamun* (*Sizygium Jambolanum*, DeC.), and the kernels (*bijli*) of the mango, were also used, the latter especially being eagerly sought for and eaten in times of scarcity.

Only a few plants furnished seeds to aid in supplying the want of grain, and of these the following are the chief:—

*Sámák* (*Panicum Colonum*, L.).

*Makrá* (*Dactyloctenium Ægyptiacum*, Willd.).

*Talmukhárá* (*Astnacantha Longifolia*, Nees.).

*Doodlághás* (*Euphorbia Dracunculoides*, Lam. ?).

*Gokhroo* (*Tribulus Terrestris*, L.).

*Gaikwár* (*Aloe Vulgaris*, Lam.).

And the *nilofur* (*Nymphœa*) above mentioned.

A wild variety of marsh-rice also is collected and eaten in considerable quantities, as well during famines as at other times.

The leaves and stems of a large number of plants were used as greens, &c., viz. :—

*Noniyá* (*Portulacca Oleracea*, Lin.).

*Duss* (*Digera Arvensis*, Torsk.).

*Sarnáli* (*Celosia Argentea*, L.).

*Gojúá* (*Amarantus* Sp.).

*Biskhaprá* (*Trianthema Obcordata*, Rox.).

*Panwár* (*Cassia Tora*, L.).

*Gaikwár* (*Aloe* abovementioned), the *gúda* or pulp of leaves.

*Manphorá*, *Jinjru* (*Triumfetta* Sp.).

*Harankhúri* (*Ipomœa Sessiliflora*, Goert.).

*Korná Kanná* (*Commelina Communis*, L.).

And *Gokhroo* (*Tribulus Terrestris*, L.).

Several of the above are occasionally used in ordinary seasons by the very poor, as the seed of *súmák*, and the leaves of *noniyá*, *panwár* and *gojúá*, but the greater number

of them are entirely innutritious, and some even noxious (as the *biskhaprá*, which is stated to have often produced diarrhoea and paralysis); so that only the severest dearth would bring them into use. I was not stationed in this district during the late famine, but had occasion to pass through it soon after the commencement of the rains of 1861, and the squalid and hungry appearance of men and cattle even then, with the statements of those who were resident in the district during the worst period of the famine, removed any incredulity I might be apt to feel as to the noxious or horrible substances that the direst hunger induced the wretched inhabitants there to have recourse to as substitutes for ordinary articles of food.

Even in the late crop (*Khureef* 1862), in some parts many fields remained uncultivated on account of a scarcity of seed.

## 12.—THE USE OF TOBACCO, BEETLE-NUT AND SPIRITS.

As having some bearing on the subject of the food of the people, I shall dedicate a few lines to these articles.

The total consumption of tobacco must be very large, by far the greater part of it being used for smoking in the *hookah* or *chillum*, for which purpose the tobacco is mixed with from a half (in the rains) to an equal weight of *goor* or *shirá* (see Section 8), the quantity being varied, because an excess of either of these in the wet season makes the tobacco "cling" too much. The juice of the *pánri* (the stems of *Piper Betel*, *L.*), which is supposed to increase the excitant effects of the tobacco, is in this district very rarely indeed added by any, and never by laborers.

The average daily quantity of the *hookah* compound used by smokers among the laboring population is probably not less than 2 oz. (costing half a pice, =  $\frac{3}{4}$  of a farthing). This would give at least 22lbs. of pure tobacco to each smoker annually, and the practice is almost universal among males after the 9th and 10th year (almost no



women, except those of light character, smoke). Partial returns I got from some sections of the district, and which would give four and a half pounds of tobacco annually to each inhabitant, male and female, infant and adult, are, in all probability, not over the mark. As tobacco grows well on low, loamy, well-irrigated lands only, there is a considerable importation of it into this district from the Doab.

Snuffing is rarely practised (by both Hindoos and Musulmans); indeed so infrequent is the habit, that I am informed there is no regular snuff-maker, but each snuffer manufactures for himself by roughly pounding the dried leaf.

A good deal of tobacco is consumed as one of the ingredients of "Betel-nut," and by the poor it is occasionally "eaten" unmixed, only the first mouthful of saliva being expectorated, and the rest swallowed. This practice is considered to have a repellant effect on the flatulence engendered by the large amount of greens, pulse, &c., that the laborer consumes.

No bad effect on the appetite or general health is attributed to the tobacco which is used in these various ways.

Of "Betel-nut," the two chief ingredients, viz., the leaf of the *pān* (Piper Betel, L.) and *soopāri* (Nut of Areca Catechu, L.) are brought from "the East," (Cawnpore is the nearest district in which the former is cultivated) while *chindā* (lime) and *kutthā* (Gum of Acacia Catechu, L.) are both indigenous. To these, which all *pān* users consume, perhaps one-half add a little tobacco, this being much more common with women than men, possibly to indemnify them for the want of the *hookah*. The average consumption of this luxury among those who can afford it (it is by no means so common among males as tobacco-smoking) may be five leaves a day, which, with the other ingredients, would at average prices cost about one and a half pice ( $2\frac{1}{4}$  farthings). There are instances, however,

(though of course only among the well-to-do) of a consumption of a hundred leaves a day. The only reasons given for the use of *pin* at all, are custom, its cheering the spirits "as tobacco does," and its correcting flatulence. The inordinate use of it is considered to lessen the appetite.

I have been able to get no definite information about the consumption in this district of *bhung* and *charras* (products of *Cannabis Sativa*, L., Hemp.) I presume, because inquiries about it are believed to have fiscal bearings; but am inclined to think that the use of any preparation of this plant is by no means prevalent. The same remarks apply to the consumption of opium.

A small quantity of course, fire spirit, is made and consumed. This is generally distilled by means of the ordinary rude apparatus of two metallic vessels connected by a bamboo tube, from *goor* and *shiri* (see Section 8), and occasionally and locally from the grain of *mandûâ* (Eleusine Coracana, Gaert.). The once distilled liquor *tharrâ* of two qualities, *râi* weaker, and *phitkâ*, (costing respectively two annas, and four annas, 3d. and 6d. a bottle,) is that used by the poor, and but little of the twice distilled *mullattar* is made.

From a very rough calculation, based on a guess at the proportion that the amount raised from the duty on spirits possibly bears to the value of the liquor, it seems extremely probable that the average quantity of spirits used in the district (unless there be an extensive contraband manufacture), cannot be over a very few ounces a year for each inhabitant; and its consumption is, in all likelihood, almost entirely confined to the inhabitants of towns.

The saccharine juice, *sendrâ* or *sendri*, extracted from the top of the trunk below the bunch of leaves of the *khajûr* (*Phoenix Sylvestris*, Rox.), is occasionally drunk fresh for its pleasant flavour only, but it is said to be generally kept until it has fermented, and then used for its intoxicating qualities.

As I have before mentioned, trees of *mahwā*, (*Bassia Latifolia*, Rox.) are rare in this district, and I am not aware that the flowers are ever used for the preparation of *spirits*.

After the multitudinous details that have been given regarding each class of articles of food, but little need be added on the subject generally.

The prices of the various staple crops would appear to have a greater effect on the relative quantities of those consumed at different periods of the year, than opinions connected with their wholesomeness, &c. Still the latter consideration has its weight in determining the choice of certain kinds of food at certain seasons.

Thus, in the cold weather, much more *bājra*, which is considered "heating," is consumed, with a large proportion of salt and spices, than at any other time; and in that season generally, one meal a day at least, consists of pulse with rice in the form of *khijri*. *Baghār*, or rice made into meal with its inner husk, is also a favourite kind of food in the cold weather.

In the hot season again, rice is the cereal most used, and this accords with the fact, that its comparative consumption is found gradually to increase towards Calcutta, and to decrease towards Afghanistan, so that in the Upper Punjab it constitutes a very small proportion of the food of the people; and wheat and maize are very much used.

In the rainy season, in this district, more wheat appears to be eaten than at any other time of the year,—very often in the form of *gochni* bread, with about one part in four of pulse-meal.

The labourer, if not in straits, always has two meals a day, the fullest being the morning one, at 6 to 8 A. M., before he begins to, or during an interval of his work; the evening one, after the day's labour is finished; but of course the change of the seasons, the weather, and the nature and place of his work, cause considerable variation in this respect.

The staple food of the labouring classes in this, as in most other countries, consists of one or other of the cereals, here generally combined with a considerable amount of pulse.

From very many enquiries, the average consumption of adult labourers, male and female, appears to be about ten or twelve *chittacks* (20 to 24 oz.) a day of meal, or rice, with about two *chittacks* (4 oz.) of pulse.

The average weight of the adult males admitted into Bijnour Jail in six months was, Hindoos one maund and ten seers (100 lbs.), and Mussulmans, one maund and eight seers (96 lbs.); and since this may be assumed as a tolerably close approximation to the average weight of the adult male inhabitants of the district, the above quantity of food seems liberal, when compared with the amount which has been found to support healthy persons in Europe, where the average weight of individuals is probably considerably higher than here.

Less invariable (than pulse), but still very frequent concomitants of the bread or rice consumed, are greens, and *tarkari* of gourds and other vegetables, and, in the season, one or two kinds of fruits, especially the mango. These not only have their uses in supplying fresh vegetable juices to the economy, but also add to, and vary the sapid elements of the food, and thus, besides satisfying the natural craving for flavour, they also aid in stimulating the process of digestion, although, both theoretically and practically, an excessive amount of such food taken habitually is deleterious.

A more constant error of the labourer is that of making his cakes too thick, and under-cooking them. The reasons for this practice are, that it saves trouble, time and fire, and produces the feeling of satiety with a smaller quantity. It is barely necessary to observe that the practice is calculated to injure digestion seriously, (and in Native Regiments I have very often found that it materially interfered with

convalescence from certain diseases of the alimentary canal.)

The average quantity of animal fibrin consumed by the labourer must be very small indeed, as meat is but rarely eaten by him, and then generally only in quantity sufficient to constitute a relish to his ordinary vegetable diet. The place of the oleaginous element, which is, among meat-eating nations, mostly derived from flesh, is here filled by the very large amount of animal and vegetable oils consumed in various ways, especially as adjuncts in cooking vegetables, &c., and in the Protei-form sweetmeats.

The amount of spices taken is also large, and is probably to some extent necessitated by the rarity of the stimulus of meat, and by the considerable proportion generally borne by crude vegetables to the other articles of food.

Sugar likewise is used in larger quantity than in temperate climates; but I should think not more than, of so much as, is used in other countries where the sugarcane is cultivated.

The average amount of spirits drunk appears to be very much less than would have any serious effect on the dietetic relations of the people; nor is there any evidence to show that the almost universal use of tobacco and betel-nut in large quantity affect these.

In conclusion, I may mention how the information contained in this paper has been brought together, so as to afford some slight test of its reliability.

A foundation for the whole was laid by a series of about sixty questions, regarding the nature of the food in use, &c. addressed to the Tehseeldars of each of the five subdivisions of the district (and circulated by the kindness of the Collector). The information contained in the answers to these has been checked, and very much amplified by cross-questioning peasants met casually in my walks, some of my own servants, indigenous to the district, selected men from all classes of the prisoners in Jail, and the Darogah of the Jail, a very intelligent man, native of a neigh-

bouring district, and long resident in this. In every case where there was reason to suspect the correctness of the answers received, I have applied to another source (and in many instances to several), so as to verify the former; and when there was any doubt as to a substance, I have invariably had samples brought up, so as to identify them.

By these means I trust that I have, as far as may be, eliminated most of the errors that otherwise may so readily occur in a paper embracing so many and various details as this does; and where there are errors and defects, and I doubt not there are many of both, I can only say that, much as I regret them, they have been caused by no want of will or endeavour on my part to do justice to the subject, which is one to which, considering its importance and interest, probably far too little attention has been paid.

END OF VOLUME II.